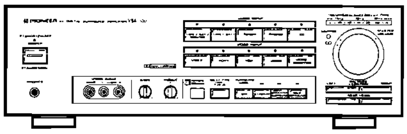
2488

PIONEER
The future of sound and vision.

Original

Service Manual



ORDER NO.
ARP1780

AV DIGITAL SURROUND AMPLIFIER

VSA-500

VSA−500 HAS TWO VERSIONS :

Type	Power requirement	Export destination
HE	AC220V, 240V (switchable) *	European continent
SD	AC110V, 120V−127V, 220V, 240V (switchable)	Kingdom of Saudi Arabia and general market

*Change the primary wiring of the power transformer.

- **This manual is applicable to the VSA-500/HE and SD types.**
- **For the SD type, refer to pages 36 - 43.**
- **Ce manuel pour le service comprend les explications en français de réglage.**
- **Este manual de servicio trata del método ajuste escrito en español.**

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2488

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1. EXPLODED VIEW, PACKING AND PARTS LIST

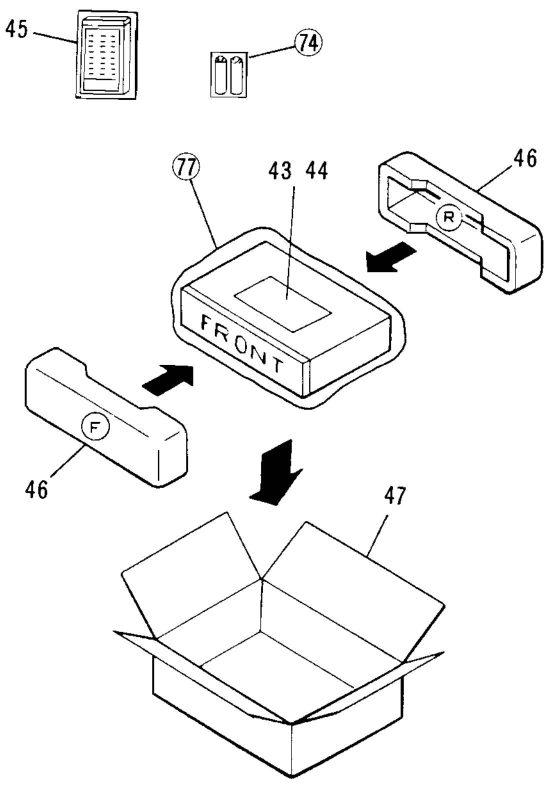
NOTES :

- Parts without part number cannot be supplied.
- The ⚠ mark found on some component parts indicates the impotance of the safety factor of the part. Therefore, when replacing, be sure to use parts of identical designation.
- For your parts Stock Control, the fast moving items are indicated with the marks ★★ and ★.
  ★★ GENERALLY MOVES FASTER THAN ★.
  This classification shall be adjusted by each distributor because it depends on model number, temperature, humidity, etc.
- Parts marked by "⊙" are not always kept in stock. Their delivery time may be longer than usual or they may be unavailable.

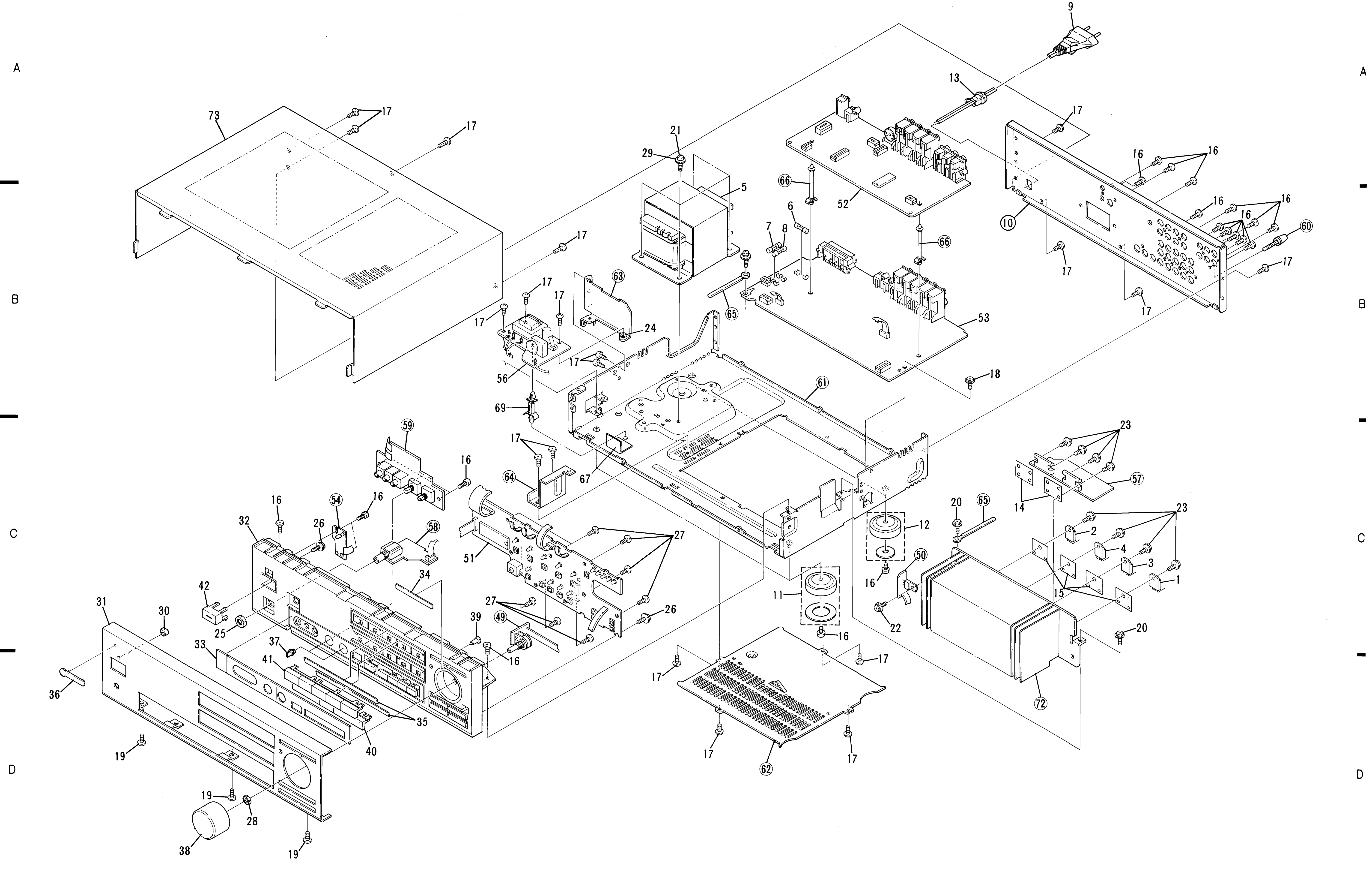
1.1 PARTS LIST

Mark	No.	Part No.	Description
⚠	1	2SA1264N	TRANSISTOR Q3
⚠	2	2SA1264N	TRANSISTOR Q4
⚠	3	2SC3181N	TRANSISTOR Q1
⚠	4	2SC3181N	TRANSISTOR Q2
⚠	5	ATS1193	POWER TRANSFORMER T1
⚠	6	AEK-042	FUSE(T3.15A) FU1
⚠	7	AEK-042	FUSE(T3.15A) FU3
⚠	8	AEK-042	FUSE(T3.15A) FU4
	9	ADG1019	AC POWER CORD
	10		REAR PANEL
	11	AMR1434	INSULATOR ASSEMBLY
	12	AMR1435	INSULATOR ASSEMBLY
⚠	13	AEC-829	STRAIN RELIEF
	14	AEP-057	MICA SHEET
	15	AEP-313	INSULATING SPACER
	16	ABA-298	SCREW
	17	ABA1009	SCREW (STEEL)
	18	ABA1011	SCREW (STEEL)
	19	ABA1048	SCREW (STEEL)
	20	ABA1052	SCREW
	21	ABA1054	SCREW
	22	ABA1076	SCREW (STEEL)
	23	ABA1082	SCREW
	24	ABE-052	WASHER
	25	ABN-065	NUT
	26	ABZ26P080FZK	SCREW
	27	BBZ26P080FMC	SCREW
	28	NK70FUC	NUTS
	29	WA45F100K080	WASHER
	30	AMR1160	INDICATING LENS
	31	ANB1298	FRONT PANEL
	32	AMB1395	PANEL BASE
	33	AAK1609	SHEET PANEL
	34	AAK1610	VOL IND PANEL
	35	AAK1611	FUNCTION PANEL
	36	AAM1029	NAME PLATE (METAL)
	37	AAB1060	ROTARY KNOB
	38	AAB1085	VOL ROTARY KNOB
	39	AAD1398	TACT KNOB
	40	AAD1462	HINGE KNOB
	41	AAD1463	HINGE KNOB
	42	AAD1535	POWER KNOB
	43	ARE1114	OPERATING INSTRUCTION
	44	ARC1162	OPERATING INSTRUCTION
	45	AXD1099	REMOTE CONTROL UNIT
	46	AHA1015	STYROL PROTECTOR
	47	AHD1616	PACKING CASE
	48		.....
	49	AWZ2000	ENCODER ASSEMBLY
	50	AWZ2005	REGULATOR ASSEMBLY
	51	AWZ2079	μ-COM ASSEMBLY
	52	AWZ2082	SURROUND ASSEMBLY
	53	AWZ2083	POWER V.SEL ASSEMBLY
	54		POWER SW ASSEMBLY
	55		.....
	56		SUB TRANS ASSEMBLY
	57	AWZ2085	REAR POWER ASSEMBLY
	58		HEADPHONE ASSEMBLY
	59		TONE.V.AUX ASSEMBLY
	60		TERMINAL SCREW
	61		CHASSIS
	62		BOTTOM PLATE
	63		TRANSFORMER HOLDER
	64		HEAT SINK HOLDER
	65		NYLON BINDER
	66		P.C.B SUPPORT
	67		BARRIER
	68		CLAMPER
	69		.....
	70		.....
	71		.....
	72		HEAT SINK
	73	AZN1746	METAL BONNET
	74		AM4 BATTERY(1.5V)
	75		.....
	76		.....
	77		SHEET

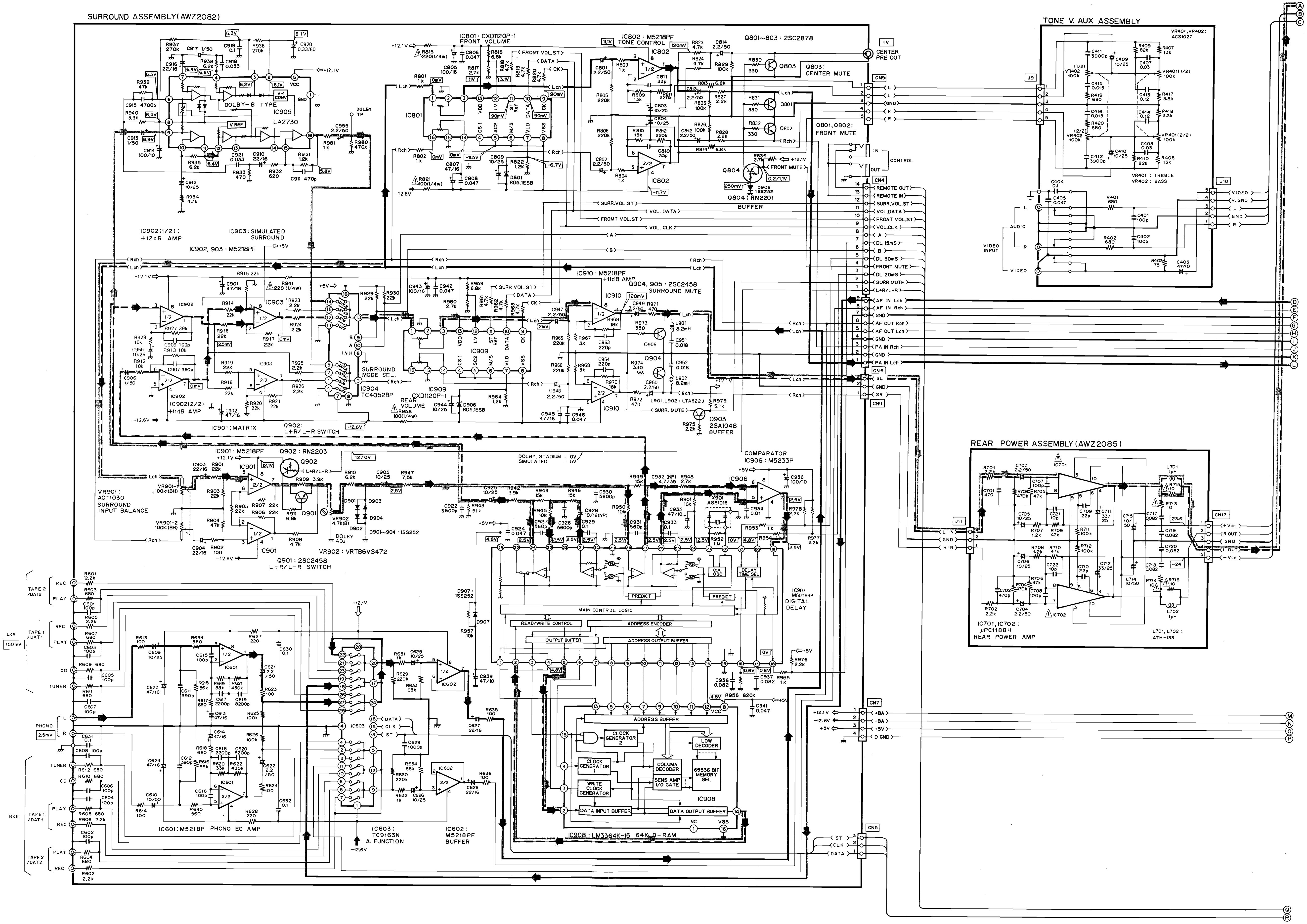
1.2 PACKING

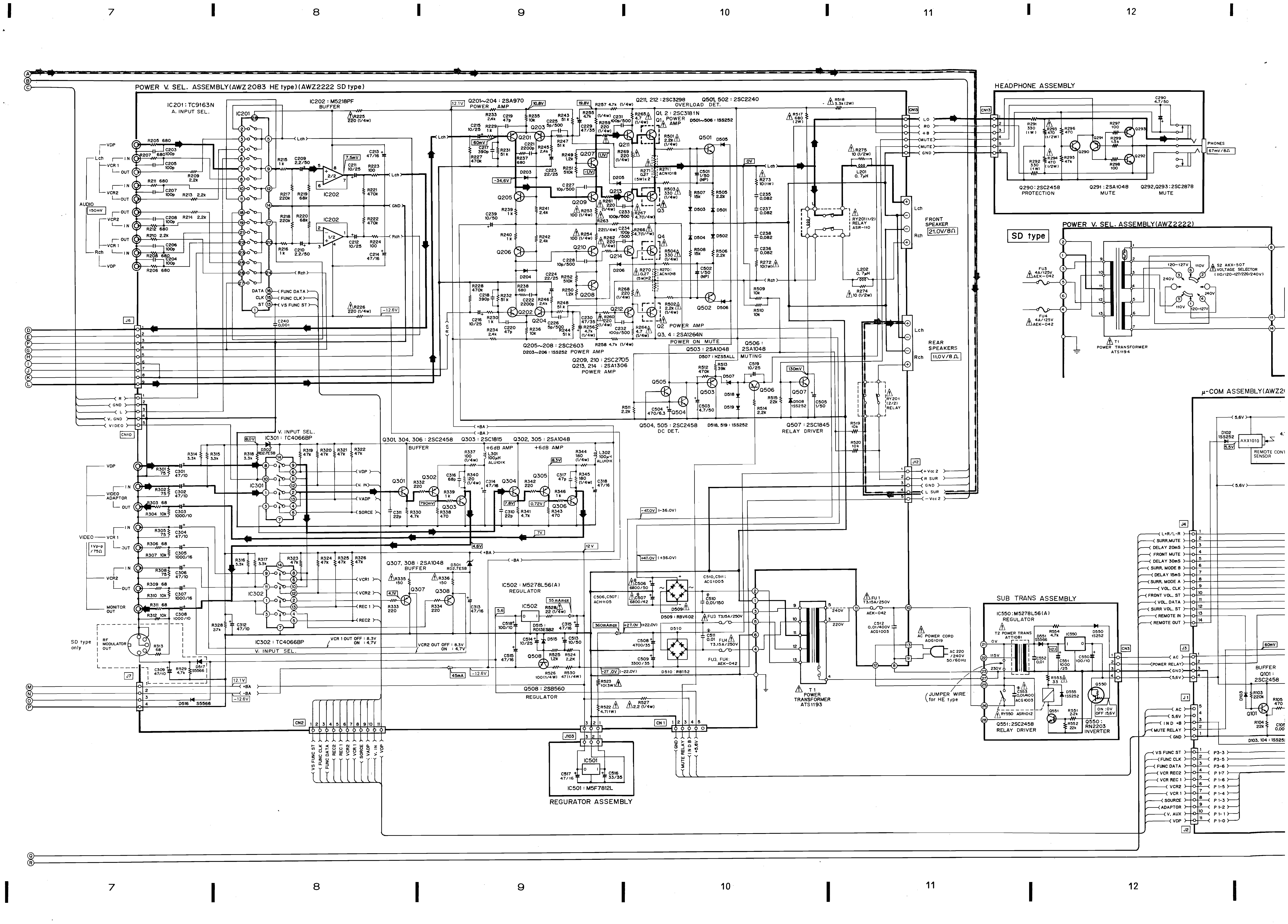


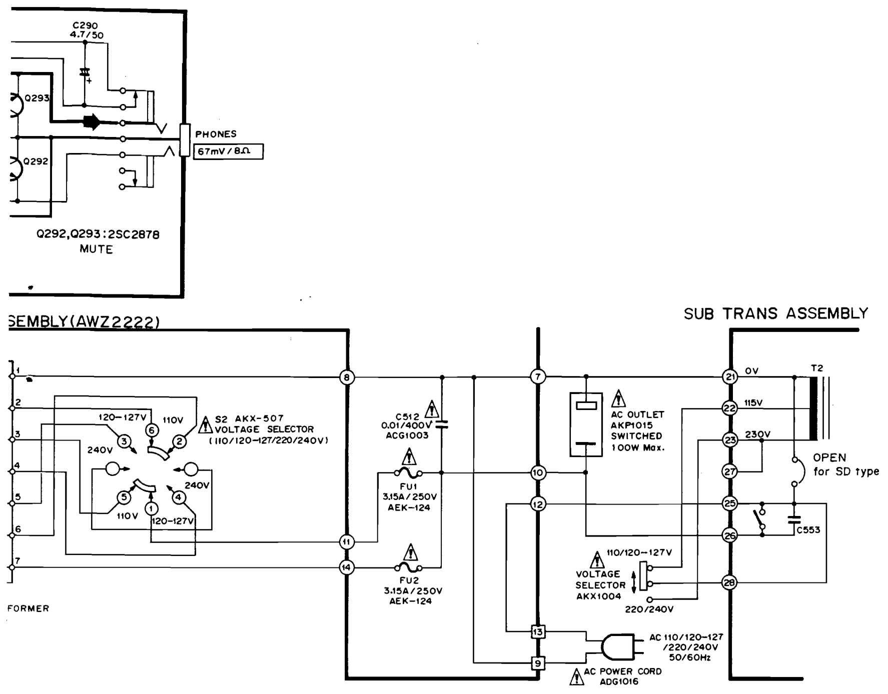
1.3 EXPLODED VIEW


A
B
C
D
9
13
17
73
17
17
21
29
5
(66)
6
52
16
16
⑩
16
16
16
(60)
17
17
7
8
(66)
17
(63)
17
17
17
24
(65)
53
17
56
18
(61)
69
(59)
17
23
16
(64)
67
(57)
16
(54)
16
14
23
32
26
(58)
27
20
(65)
12
2
4
3
1
(51)
42
34
㊿
15
11
16
27
26
31
30
25
39
㊾
22
16
20
37
33
41
16
17
17
36
35
40
(72)
19
17
17
(62)
19
28
38
19

2. SCHEMATIC DIAGRAM


SURROUND ASSEMBLY (AWZ2082)
IC801 : CXD1120P-1 FRONT VOLUME
IC802 : M5218PF TONE CONTROL
Q801~803 : 2SC2878
CENTER PRE OUT
Q803 : CENTER MUTE
Q801, Q802 : FRONT MUTE
Q804 : RN2201 BUFFER
DOLBY-B TYPE
IC905 LA2730
DOLBY TP
IC902(1/2) : +12dB AMP
IC903 : SIMULATED SURROUND
IC902, 903 : M5218PF
IC910 : M5218PF +11dB AMP
Q904, 905 : 2SC2458 SURROUND MUTE
IC904 TC4052BP SURROUND MODE SEL.
IC909 CXD1120P-1 REAR VOLUME
IC902(2/2) +11dB AMP
IC901 : MATRIX
Q902 : L+R/L-R SWITCH
L901, L902 : LTA822J
Q903 2SA1048 BUFFER
IC901 : M5218PF
Q902 : RN2203
DOLBY, STADIUM : 0V
SIMULATED : 5V
COMPARATOR IC906 : M5233P
VR901 : ACT1030 SURROUND INPUT BALANCE
Q901 : 2SC2458 L+R/L-R SWITCH
VR902 : VRTB6VS472
D901~904 : 1SS252
DOLBY ADJ.
IC907 M50199P DIGITAL DELAY
MAIN CONTROL LOGIC
READ/WRITE CONTROL
ADDRESS ENCODER
OUTPUT BUFFER
ADDRESS OUTPUT BUFFER
PREDICT
DELAY TIME SEL
ADDRESS BUFFER
CLOCK GENERATOR 2
LOW DECODER
CLOCK GENERATOR 1
COLUMN DECODER
WRITE CLOCK GENERATOR
SENS AMP I/O GATE
65536 BIT MEMORY SEL
DATA INPUT BUFFER
DATA OUTPUT BUFFER
IC908 : LM3364K-15 64K D-RAM
TAPE 2 /DAT2
TAPE 1 /DAT1
REC
PLAY
CD
TUNER
PHONO
Lch
Rch
150mV
2.5mV
IC601 : M5218P PHONO EQ AMP
IC603 : TC9163N A. FUNCTION
IC602 : M5218PF BUFFER
TONE V. AUX ASSEMBLY
VR401, VR402 : ACS1027
VR401 : TREBLE
VR402 : BASS
AUDIO
VIDEO INPUT
VIDEO
REAR POWER ASSEMBLY (AWZ2085)
IC701, IC702 : μPC1188H REAR POWER AMP
L701, L702 : ATH-133
CN4
CN5
CN6
CN7
CN9
CN11
CN12
J9
J10
J11
CONTROL
REMOTE OUT
REMOTE IN
SURR. VOL. ST
VOL. DATA
FRONT VOL. ST
VOL. CLK
DL 15mS
DL 30mS
FRONT MUTE
DL 20mS
SURR. MUTE
L+R/L-R
AF IN Lch
AF IN Rch
AF OUT Rch
AF OUT Lch
PA IN Rch
PA IN Lch
SL
SR
GND
A
B
C
D
E
F
G
H
I
J
K
L
M
N
O
P
Q
R
1
2
3
4
5
6


7
8
9
10
11
12
POWER V. SEL. ASSEMBLY(AWZ2083 HE type)(AWZ2222 SD type)
IC201 : TC9163N
A. INPUT SEL.
IC202 : M5218PF
BUFFER
Q201~204 : 2SA970
POWER AMP
Q211, 212 : 2SC3298
OVERLOAD DET.
Q501, 502 : 2SC2240
Q1, 2 : 2SC3181N
Q1 POWER AMP
D501~506 : 1SS252
Q2 POWER AMP
Q3, 4 : 2SA1264N
Q205~208 : 2SC2603
D203~206 : 1SS252 POWER AMP
Q209, 210 : 2SC2705
Q213, 214 : 2SA1306
POWER AMP
Q503 : 2SA1048
POWER ON MUTE
Q506 : 2SA1048
D507 : HZS5ALL MUTING
Q504, 505 : 2SC2458
DC DET.
D518, 519 : 1SS252
Q507 : 2SC1845
RELAY DRIVER
RY201(1/2) RELAY ASR-110
RY201 (2/2) RELAY
FRONT SPEAKER 21.0V/8Ω
REAR SPEAKERS 11.0V/8Ω
Lch
Rch
AUDIO 150mV
VDP
VCR 1
VCR 2
IN
OUT
V. INPUT SEL.
IC301 : TC4066BP
Q301, 304, 306 : 2SC2458
BUFFER
Q303 : 2SC1815
+6dB AMP
Q302, 305 : 2SA1048
+6dB AMP
VIDEO ADAPTOR
VIDEO 1Vp-p /75Ω
MONITOR OUT
SD type only
RF MODULATOR OUT
Q307, 308 : 2SA1048
BUFFER
IC302 : TC4066BP
V. INPUT SEL.
VCR 1 OUT OFF : 8.3V ON : 4.7V
VCR2 OUT OFF : 8.3V ON : 4.7V
IC502 : M5278L56(A)
REGULATOR
Q508 : 2SB560
REGULATOR
IC501 : M5F7812L
REGURATOR ASSEMBLY
D509 : RBV602
D510 : RB152
FU3 T3.15A/250V
FU4 T3.15A/250V
FU3, FU4 : AEK-042
FU1 T3.15A/250V AEK-042
T1 POWER TRANSFORMER ATS1193
AC POWER CORD ADG1019
AC 220/240V 50/60Hz
JUMPER WIRE for HE type
HEADPHONE ASSEMBLY
PHONES 67mV/8Ω
Q290 : 2SC2458 PROTECTION
Q291 : 2SA1048 MUTE
Q292, Q293 : 2SC2878 MUTE
SD type
POWER V. SEL. ASSEMBLY(AWZ2222)
FU3 4A/125V AEK-042
FU4 4A/125V AEK-042
S2 AKX-507 VOLTAGE SELECTOR (110/120-127/220/240V)
T1 POWER TRANSFORMER ATS1194
SUB TRANS ASSEMBLY
IC550 : M5278L56(A) REGULATOR
T2 POWER TRANS ATT1081
Q551 : 2SC2458 RELAY DRIVER
Q550 : RN2203 INVERTER
ON : 0V OFF : 5.6V
RY550 ASR1012
µ-COM ASSEMBLY(AWZ2
REMOTE CONTROL SENSOR
AXX1010
BUFFER Q101 : 2SC2458
CN13
CN10
CN2
CN1
CN3
J6
J7
J12
J103
J4
J3
J1
J2
LO
RO
+B
MUTE
GND
VS FUNC ST
FUNC CLK
FUNC DATA
REC 2
REC 1
VCR 2
VCR 1
SOURCE
VADP
V. IN
VDP
L+R/L-R
SURR.MUTE
DELAY 20mS
FRONT MUTE
DELAY 30mS
SURR. MODE B
DELAY 15mS
SURR. MODE A
VOL. CLK
FRONT VOL. ST
VOL. DATA
SURR VOL. ST
REMOTE IN
REMOTE OUT
AC
POWER RELAY
GND
5.6V
IND +B
MUTE RELAY
ADAPTOR
V. AUX
+Vcc 2
R SUR
L SUR
-Vcc 2


C290
4.7/50
Q293
Q292
PHONES
67mV/8Ω
Q292,Q293:2SC2878
MUTE
SEMBLY(AWZ2222)
FORMER
120–127V
110V
240V
S2 AKX-507
VOLTAGE SELECTOR
(110/120–127/220/240V)
C512
0.01/400V
ACG1003
FU1
3.15A/250V
AEK-124
FU2
3.15A/250V
AEK-124
AC OUTLET
AKP1015
SWITCHED
100W Max.
110/120–127V
VOLTAGE
SELECTOR
AKX1004
220/240V
AC 110/120–127
/220/240V
50/60Hz
AC POWER CORD
ADG1016
SUB TRANS ASSEMBLY
T2
0V
115V
230V
OPEN
for SD type
C553

1. RESISTORS:
   Indicated in Ω, 1/4W, 1/8W, ±5% tolerance unless otherwise noted k; kΩ, M; MΩ, (F); ±1%, (G); ±2%, (K); ±10%, (M); ±20% tolerance.
2. CAPACITORS:
   Indicated in capacity (μF)/voltage (V) unless otherwise noted p; pF. Indication without voltage is 50V except electrolytic capacitor.
3. VOLTAGE CURRENT:
   ▭ ; DC voltage (V) at no input signal
   ▭ Value in ( ) is DC voltage at rated power.
4. OTHERS:
   ➡ ; Signal route.
   ⊘ ; Adjusting point.
   The ⚠ mark found on some component parts indicates the importance of the safety factor of the part. Therefore, when replacing, be sure to use parts of identical designation.
   ※ marked capacitors and resistors have parts numbers.

   This is the basic schematic diagram, but the actual circuit may vary due to improvements in design.
5. SWITCHES (Underline indicates switch position)

μ –COM Ass'y
S101 : DELAY TIME
S102 : VCR2
S103 : BALANCE L
S104 : TAPE2/DAT2 MONITOR
S105 : SURROUND OFF
S106 : VCR1
S107 : BALANCE R
S108 : TAPE1/DAT1
S109 : STADIUM
S110 : VDP
S111 : REAR LEVEL–
S112 : TUNER
S113 : SIMULATED SURROUND
S114 : VIDEO
S115 : REAR LEVEL+
S116 : PHONO
S117 : DOLBY SURROUND
S118 : VIDEO ADAPTOR
S119 : MUTING
S120 : CD
ENCODER Ass'y
S121 : ROTARY ENCODER
POWER SW Ass'y
S122 : POWER

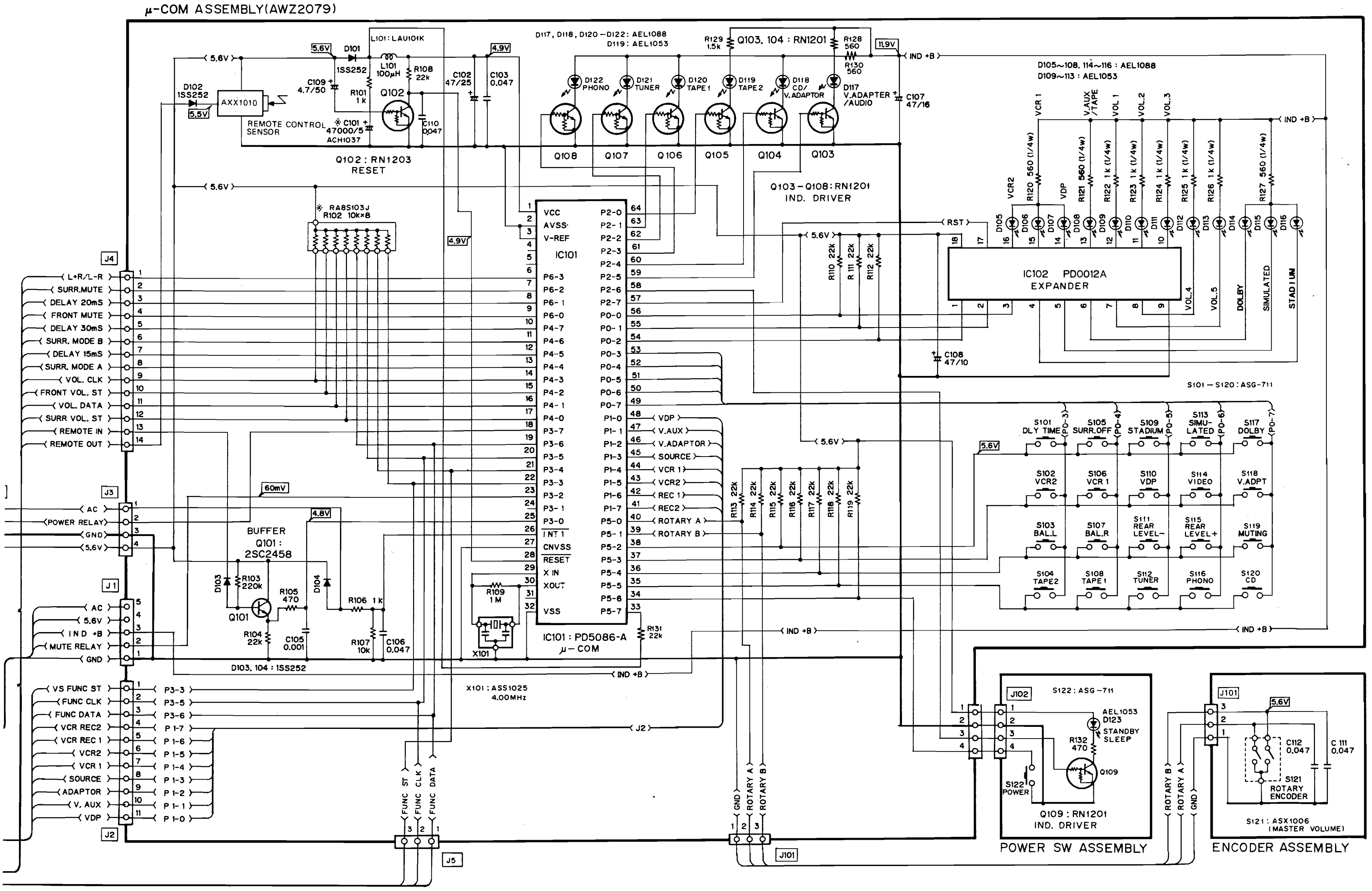
▬▬▬	MAIN ROUTE
‒ ‒ ‒ ‒	SIMULATED SURROUND ROUTE
▬▬▬	DOLBY SURROUND ROUTE

Line Voltage Selection (For HE type)

Line voltage can be changed with following steps.

1. Disconnect the AC power cord.
2. Remove the Bonnet case.
3. Change the connection of the power transformer lead wire.
4. Stick the line voltege label on the rear panel.

Part No.	Description	
AAX-193	220v label	———— 220V
AAX-192	240V label	‒ ‒ ‒ ‒ 240V


μ-COM ASSEMBLY(AWZ2079)
D101
1SS252
L101:LAU101K
L101
100μH
R108
22k
C102
47/25
C103
0.047
D102
1SS252
AXX1010
REMOTE CONTROL
SENSOR
C109
4.7/50
R101
1k
Q102
※C101
47000/5
ACH1037
C110
0.047
Q102 : RN1203
RESET
D117, D118, D120–D122 : AEL1088
D119 : AEL1053
R129
1.5k
Q103, 104 : RN1201
R128
560
R130
560
D122 PHONO
D121 TUNER
D120 TAPE1
D119 TAPE2
D118 CD/V.ADAPTOR
D117 V.ADAPTER/AUDIO
C107
47/16
Q108
Q107
Q106
Q105
Q104
Q103
Q103–Q108 : RN1201
IND. DRIVER
D105~108, 114~116 : AEL1088
D109~113 : AEL1053
※ RA85103J
R102 10k×8
IC101
IC101 : PD5086-A
μ-COM
X101
X101 : ASS1025
4.00MHz
R109
1M
R131
22k
IC102 PD0012A
EXPANDER
R110 22k
R111 22k
R112 22k
C108
47/10
VOL.4
VOL.5
DOLBY
SIMULATED
STADIUM
VCR1
V.AUX/TAPE
VOL.1
VOL.2
VOL.3
S101–S120 : ASG-711
S101 DLY TIME
S105 SURR.OFF
S109 STADIUM
S113 SIMULATED
S117 DOLBY
S102 VCR2
S106 VCR1
S110 VDP
S114 VIDEO
S118 V.ADPT
S103 BAL.L
S107 BAL.R
S111 REAR LEVEL–
S115 REAR LEVEL+
S119 MUTING
S104 TAPE2
S108 TAPE1
S112 TUNER
S116 PHONO
S120 CD
J4
L+R/L-R
SURR.MUTE
DELAY 20mS
FRONT MUTE
DELAY 30mS
SURR. MODE B
DELAY 15mS
SURR. MODE A
VOL. CLK
FRONT VOL. ST
VOL. DATA
SURR VOL. ST
REMOTE IN
REMOTE OUT
J3
AC
POWER RELAY
GND
5.6V
J1
AC
5.6V
IND +B
MUTE RELAY
GND
BUFFER
Q101 :
2SC2458
D103
R103
220k
D104
R105
470
R106 1k
R104
22k
C105
0.001
R107
10k
C106
0.047
D103, 104 : 1SS252
J2
VS FUNC ST
FUNC CLK
FUNC DATA
VCR REC2
VCR REC1
VCR2
VCR1
SOURCE
ADAPTOR
V. AUX
VDP
J5
FUNC ST
FUNC CLK
FUNC DATA
J101
ROTARY A
ROTARY B
GND
R113 22k
R114 22k
R115 22k
R116 22k
R117 22k
R118 22k
R119 22k
J102
S122 : ASG-711
AEL1053
D123
STANDBY
SLEEP
R132
470
Q109
S122
POWER
Q109 : RN1201
IND. DRIVER
POWER SW ASSEMBLY
C112
0.047
C111
0.047
S121
ROTARY
ENCODER
S121 : ASX1006
(MASTER VOLUME)
ENCODER ASSEMBLY

3. P.C. BOARDS CONNECTION DIAGRAM

- View from component side

NOTE

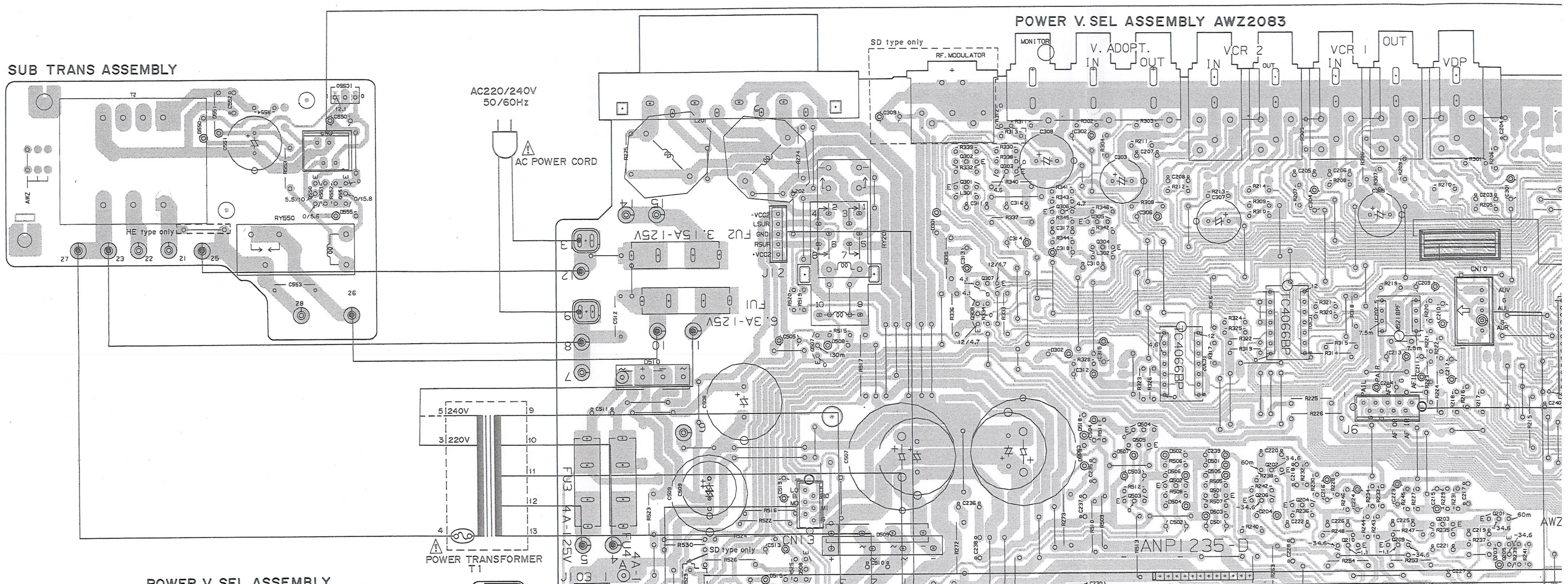
1. This P.C.B connection diagram is viewed from the parts mounted side.
2. The parts which have been mounted on the board can be replaced with those shown with the corresponding wiring symbols listed in the following Table.

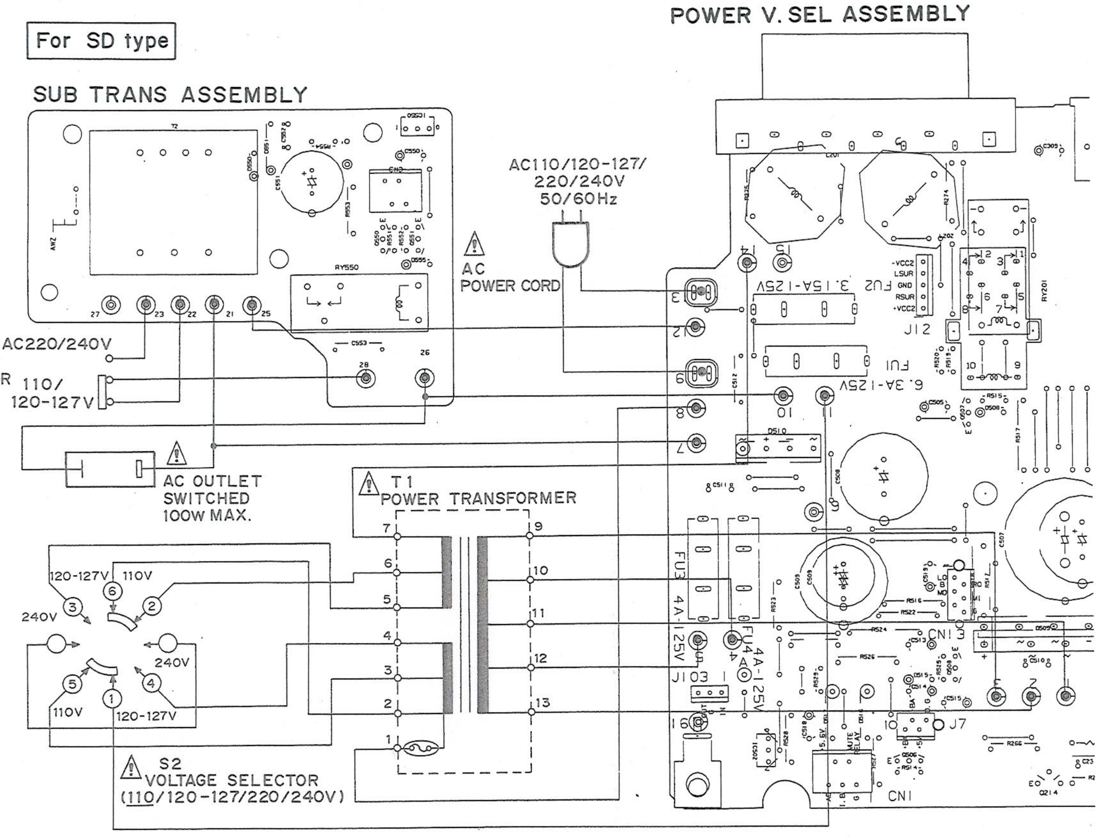
P.C.B. pattern diagram indication	Corresponding part symbol	Part Name
Q504 E ○ ○ ○	E ○ ○ ○ or E ○ ○ ○	Transistor
Q215 ○ ○ ○	or	Radiator type transistor
◎ D203 ○	D203	Diode
○ R237 ○	R237	Resistor
◎ C513 ○	+	Capacitor (Polarity)
C518		Capacitor (Non-polarity)

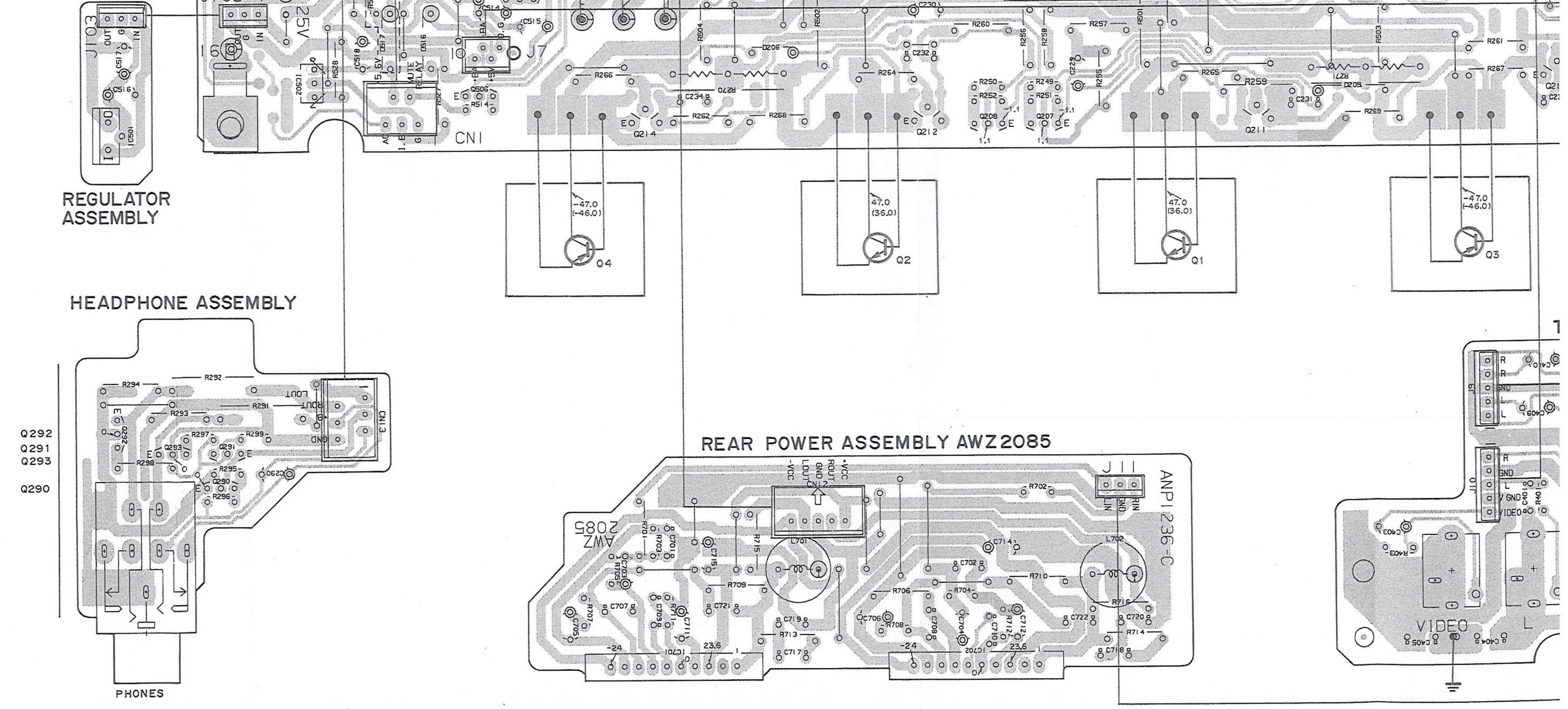
Others

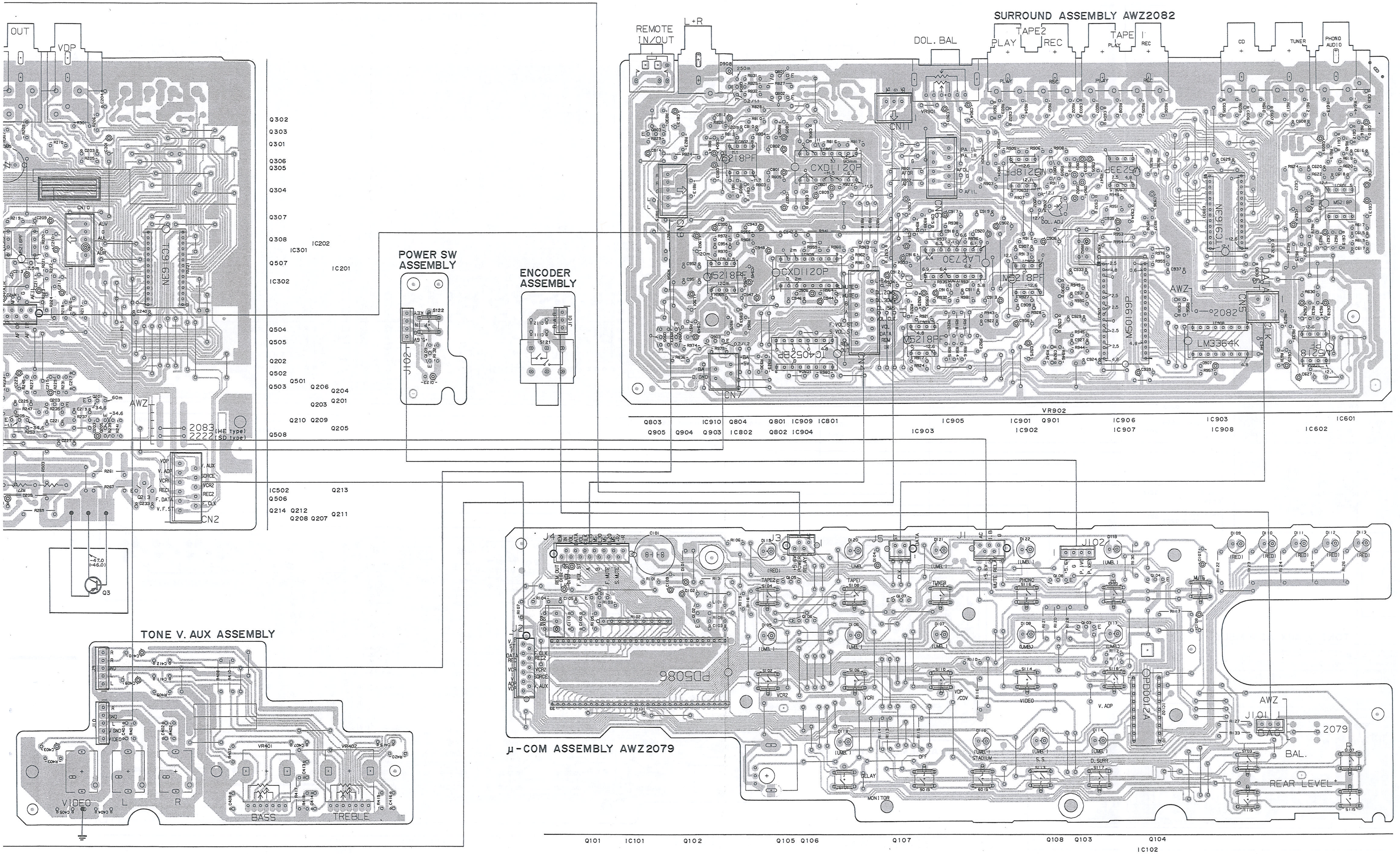
P.C.B. pattern diagram indication	Part Name
IC	IC
S	Switch
RY	Relay
L	Coil
F	Filter
VR	Variable resistor or Semi-fixed resistor

3. The capacitor terminal marked with ◎ (double circles) shows negative terminal.
4. The diode terminal marked with ◎ (double circles) shows cathode side.
5. The transistor terminal to which E is affixed shows the emitter.


SUB TRANS ASSEMBLY
T2
RY550
HE type only
AC220/240V
50/60Hz
AC POWER CORD
POWER TRANSFORMER
T1
240V
220V
FU2 3.15A-125V
FU1 6.3A-125V
FU3 4A-125V
FU4 4A-125V
J12
J6
CN10
CN13
IC4066BP
TC4066BP
SD type only
ANP1235-D
POWER V. SEL ASSEMBLY AWZ2083
SD type only
RF. MODULATOR
MONITOR
V. ADOPT.
IN
OUT
VCR 2
IN
OUT
VCR 1
IN
OUT
VDP
AWZ

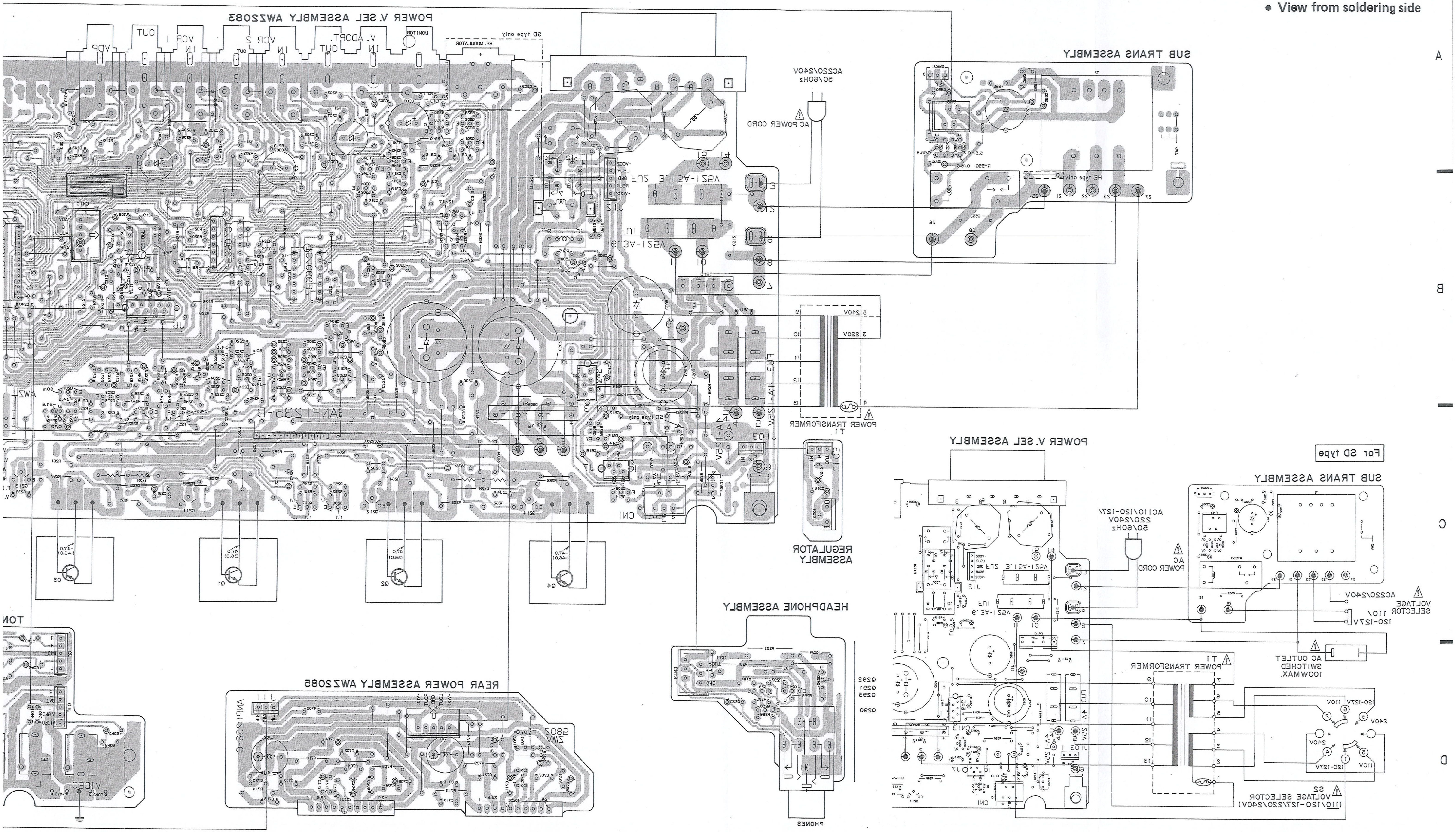

For SD type
SUB TRANS ASSEMBLY
POWER V. SEL ASSEMBLY
AC110/120-127/220/240V
50/60Hz
AC POWER CORD
AC220/240V
VOLTAGE SELECTOR
110/120-127V
AC OUTLET SWITCHED 100W MAX.
T1 POWER TRANSFORMER
120-127V
110V
240V
240V
110V
120-127V
S2 VOLTAGE SELECTOR (110/120-127/220/240V)
FU2 3.15A-125V
FU1 6.3A-125V
FU3 4A-125V
FU4 4A-125V
J12
J103
J7
CN1


J103
J7
CN1
REGULATOR ASSEMBLY
47.0 (-46.0)
Q4
47.0 (36.0)
Q2
47.0 (36.0)
Q1
47.0 (-46.0)
Q3
HEADPHONE ASSEMBLY
Q292
Q291
Q293
Q290
PHONES
REAR POWER ASSEMBLY AWZ2085
J11
ANP1236-C
AWZ 2085
VIDEO


SURROUND ASSEMBLY AWZ2082
REMOTE IN/OUT
L+R
DOL. BAL
TAPE2
PLAY
REC
TAPE 1
CD
TUNER
PHONO AUDIO
OUT
VDP
POWER SW ASSEMBLY
ENCODER ASSEMBLY
TONE V. AUX ASSEMBLY
VIDEO
L
R
BASS
TREBLE
µ-COM ASSEMBLY AWZ2079
PD5086
PD0012A
BAL.
REAR LEVEL
MONITOR
AWZ 2083 (HE type) 2222 (SD type)
AWZ 2082
AWZ 2079
CXD1120P
LA2730
M5218PF
M5223P
M50195P
LM3364K
NJM4558
TC4052BP
CN1
CN2
CN5
CN7
J101
J102
Q302
Q303
Q301
Q306
Q305
Q304
Q307
Q308
IC301
IC202
Q507
IC201
IC302
Q504
Q505
Q202
Q502
Q501
Q503
Q206
Q204
Q203
Q201
Q210
Q209
Q508
Q205
IC502
Q213
Q506
Q214
Q212
Q208
Q207
Q211
Q3
VR902
Q803
IC910
Q804
Q801
IC909
IC801
IC905
IC901
Q901
IC906
IC903
IC601
Q905
Q904
Q903
IC802
Q802
IC904
IC903
IC902
IC907
IC908
IC602
Q101
IC101
Q102
Q105
Q106
Q107
Q108
Q103
Q104
IC102
7
8
9
10
11
12
A
B
C
D

3. P.C. BOARDS CONNECTION DIAGRAM

- View from soldering side


POWER V.SEL ASSEMBLY AWZ2083
SD type only
RF. MODULATOR
VDP
OUT
VCR 1
IN
VCR 2
OUT
IN
V. ADPT.
OUT
IN
MONITOR
AC220/240V
50/60Hz
AC POWER CORD
SUB TRANS ASSEMBLY
HE type only
VS21-AS1.3 2U3
VS21-AE1.9 1U1
ANP1235-D
POWER TRANSFORMER
T1
POWER V.SEL ASSEMBLY
REGULATOR ASSEMBLY
Q3
Q1
Q2
Q4
HEADPHONE ASSEMBLY
PHONES
REAR POWER ASSEMBLY AWZ2085
ANP1236-C
5802 AWZ
VIDEO
TON
For SD type
SUB TRANS ASSEMBLY
AC110/120-127/220/240V
50/60Hz
AC POWER CORD
AC220/240V
VOLTAGE SELECTOR
110V
120-127V
AC OUTLET
SWITCHED
100W MAX.
T1
POWER TRANSFORMER
S2
VOLTAGE SELECTOR
(110/120-127/220/240V)
240V
110V
120-127V

4. ELECTRICAL PARTS LIST

NOTES :

- Parts without part number cannot be supplied.
- Parts marked by "⊙" are not always kept in stock. Their delivery time may be longer than usual or they may be unavailable.
- The ⚠ mark found on some component parts indicates the impotance of the safety factor of the part. Therefore, when replacing, be sure to use parts of identical designation.
- When ordering resistors, first convert resistance values into code form as shown in the following examples.

Ex.1 When there are 2 effective digits (any digit apart from 0), such as 560 ohm and 47k ohm (tolerance is shown by J=5%, and K=10%).

560 Ω 56×10^1 561 ……………… RD1/4PS$\boxed{5}\boxed{6}\boxed{1}$J
47k Ω 47×10^3 473 ……………… RD1/4PS$\boxed{4}\boxed{7}\boxed{3}$J
0.5 Ω 0R5 ……………… RN2H$\boxed{0}\boxed{R}\boxed{5}$K
1 Ω 010 ……………… RS1P$\boxed{0}\boxed{1}\boxed{0}$K

Ex.2 When there are 3 effective digits (such as in high precision metal film resistors).

5.62k Ω 562×10^1 5621 ……………… RN1/4SR$\boxed{5}\boxed{6}\boxed{2}\boxed{1}$F

Miscellaneous Parts

P. C. BOARD ASSEMBLIES

Mark	Symbol & Description	Part No.
	μ –COM assembly	AWZ2079
	SURROUND assembly	AWZ2082
	POWER V.SEL assembly	AWZ2083
	REAR POWER assembly	AWZ2085
	ENCODER assembly	
	REGULATOR assembly	
	POWER SW assembly	
	SUB TRANS assembly	
	HEADPHONE assembly	
	TONE.V.AUX assembly	

OTHERS

Mark	Symbol & Description	Part No.
⚠	Q3, Q4 Transistor	2SA1264N
⚠	Q1, Q2 Transistor	2SC3181N
⚠	T1 Power transformer	ATS1193
⚠	FU1, FU3, FU4 Fuse (T3.15A)	AEK–042
⚠	AC Power cord	ADG1019
	Remote control unit	AXD1099

μ –COM assembly (AWZ2079)

SEMICONDUCTORS

Mark	Symbol & Description	Part No.
	IC102	PD0012A
	IC101	PD5086–A
	Q103–Q108	RN1201
	Q102	RN1203
	Q101	2SC2458
	D109–D113, D119	AEL1053
	D105–D108, D114–D118, D120–D122	AEL1088
	D101–D104	1SS252

SWITCHES

Mark	Symbol & Description	Part No.
	S101–S120 Tact switch (V.ADPT DLY TIME, VCR2, BAL.L, TAPE2, SURROUND OFF, VCR1, BAL.R, TAPE1, STADIUM, VDP, SURROUND VOL–, TUNER, SIMULATED, TAPE V.AUX, SURROUND VOL+, PHONO, DOLBY, AUDIO V.ADPT, DLY TIME MUTING, CD)	ASG–711

COIL

Mark	Symbol & Description	Part No.
	L101 Inductor	LAU101K

CAPACITORS

Mark	Symbol & Description	Part No.
	C101 (47000 μ F/5V)	ACH1037
	C109	CEAS4R7M50
	C108	CEAS470M10
	C107	CEAS470M16
	C102	CEAS470M25
	C103, C106, C110	CKDYX473M25
	C105	CKMYF102Z50

RESISTORS

Mark	Symbol & Description	Part No.
	R102 Resistor array	RA8S103J
	R120–R130	RD¼PM□□□J
	Other resistors	RD⅛PM□□□J

OTHERS

Mark	Symbol & Description	Part No.
	X101 Ceramic resonator	ASS1025
	Remote control sensor unit	AXX1010

SURROUND assembly (AWZ2082)

SEMICONDUCTORS

Mark	Symbol & Description	Part No.
	IC801, IC909	CXD1120P–1
	IC905	LA2730
	IC908	LM3364K–15
	IC907	M50199P
	IC601	M5218P
	IC602, IC802, IC901–IC903, IC910	M5218PF
	IC906	M5233P
	IC904	TC4052BP
	IC603	TC9163N
	Q804	RN2201
	Q902	RN2203
	Q903	2SA1048
	Q901, Q904, Q905	2SC2458
	Q801–Q803	2SC2878
	D801, D906	RD5.1ESB
	D901–D904, D907, D908	1SS252

COILS

Mark	Symbol & Description	Part No.
	L901, L902 Inductor	LTA822J

CAPACITORS

Mark	Symbol & Description	Part No.
	C611, C612 (390p)	ACG1026
	C601–C608, C615, C616, C909	CCMSL101J50
	C810, C811	CCMSL330J50
	C928	CEANP100M16
	C932	CEANP4R7M35
	C920	CEASR33M50
	C906, C913, C917	CEAS010M50
	C609, C610, C625, C626, C803, C804, C809, C905, C912, C925, C944, C956	CEAS100M25
	C914, C936	CEAS101M10
	C805, C943	CEAS101M16
	C621, C622, C801, C802, C812–C814, C947–C950, C955	CEAS2R2M50
	C627, C628, C903, C904, C910, C916	CEAS220M16
	C935, C939	CEAS470M10
	C613, C614, C623, C624, C807, C901, C902, C945	CEAS470M16
	C934	CFTXA103J50
	C919, C929, C933	CFTXA104J50
	C951, C952	CFTXA183J50
	C918, C921	CFTXA333J50
	C937, C938	CFTXA823J50
	C911	CKCYB471K50
	C941, C942, C946	CKCYF473Z50
	C630–C632	CKCYX104M25
	C806, C808, C924	CKCYX473M25
	C629	CKDYB102K50
	C953, C954	CKMYB221K50
	C907	CKMYB561K50
	C617, C618	CQMA222J50
	C915	CQMA472J50
	C927, C931	CQMA561J50
	C922, C926, C930	CQMA562J50
	C619, C620	CQMA822J50

RESISTORS

Mark	Symbol & Description	Part No.
	VR901 Variable resistor (100k Ω) (SURR INPUT BAL)	ACT1030
	VR902 Semi–fixed (4.7k)	VRTB6VS472
⚠	R815, R821, R941, R958	RD¼PMF□□□J
	Other resistors	RD⅛PM□□□J

OTHERS

Mark	Symbol & Description	Part No.
	X901 Ceramic resonator	ASS1016
	4P Pin jack (INPUT TUNER/CD, TAPE1/DAT1, TAPE2/DAT2)	AKB1007
	1P Pin jack (CENTER OUT)	AKB1011
	2P Pin jack (INPUT PHONO)	AKB1059
	2P Mini jack (CONTROL)	AKN1006

POWER V. SEL assembly (AWZ2083)

SEMICONDUCTORS

Mark	Symbol & Description	Part No.
	IC202	M5218PF
	IC502	M5278L56 (A)
	IC301, IC302	TC4066BP
	IC201	TC9163N
	Q302, Q305, Q307, Q308, Q503, Q506	2SA1048
	Q213, Q214	2SA1306
	Q201–Q204	2SA970
	Q508	2SB560
	Q303	2SC1815
	Q507	2SC1845
	Q501, Q502	2SC2240
	Q301, Q304, Q306, Q504, Q505	2SC2458
	Q205–Q208	2SC2603
	Q209, Q210	2SC2705
	Q211, Q212	2SC3298
	D507	HZS5ALL
⚠	D509	RBV602
⚠	D510	RB152
	D515	RD13ESB2
	D301	RD2.7ESB1
	D302	RD3.6ESB2
	D516	S5566
	D203–D206, D501–D506, D508, D518, D519	1SS252

RELAY

Mark	Symbol & Description	Part No.
⚠	RY201 Relay	ASR–110

COILS

Mark	Symbol & Description	Part No.
	L201, L202 AF choke coil	ATH1004
	L301, L302 Inductor	LAU101K

CAPACITORS

Mark	Symbol & Description	Part No.
⚠	C512 (0.01 μF/400V)	ACG1003
	C510, C511 (0.01 μF/150V)	ACG1005
	C508 (4700 μF/35V)	ACH1021
⚠	C506, C507 (6800 μF/50V)	ACH1105
	C227, C228	CCCSL100D500
	C231–C234	CCCSL101K500
	C203–C208	CCMSL101J50
	C310, C311	CCMSL220J50
	C219, C220, C317	CCMSL470J50
	C316	CCMSL680J50
	C501, C502	CEANP010M50
	C505	CEAS010M50
	C211, C212, C514, C519	CEAS100M25
	C239, C513	CEAS100M50
	C518	CEAS101M10
	C303, C308	CEAS102M10
	C305, C307	CEAS102M16
	C209, C210	CEAS2R2M50
	C509	CEAS332M35
	C503	CEAS4R7M50
	C301, C302, C304, C306, C312	CEAS470M10
	C213, C214, C313–C315, C318, C515	CEAS470M16
	C229, C230	CEAS470M35
	C504	CEAS471M6
	C215, C216	CEYA100M25
	C223, C224	CEYA220M25
	C235–C238	CFTXA823J50
	C240	CKCYB102K50
	C221, C222	CKCYB222K50
	C217, C218	CKMYB391K50
	C225, C226	CMA050D500

RESISTORS

Mark	Symbol & Description	Part No.
⚠	R270, R271	ACN1018
⚠	R274, R275	RD½PMFL100J
⚠	R522	RS1LMF4R7J
⚠	R272, R273	RS1PMF100J
⚠	R518	RS2LMF332J
⚠	R517	RS2LMF681J
⚠	R523	RS3LMF100J
⚠	R225, R226, R253, R254, R259–R263, R501–R504, R527, R530	RD¼PMF□□□J
	R255–R258, R337, R340	RD¼PM□□□J
⚠	R264–R269, R526, R528	RFA¼PS□□□J
	Other resistors	RD⅛PM□□□J

OTHERS

Mark	Symbol & Description	Part No.
	Pin jack 3P (VDP, VCR1, VCR2)	AKB1021
	Pin jack 3P (VIDEO ADAPTOR, VIDEO OUT)	AKB1050
	Terminal 8P (SPEAKERS)	AKE–111

REAR POWER assembly (AWZ2085)

SEMICONDUCTORS

Mark	Symbol & Description	Part No.
⚠	IC701, IC702	μPC1188H

COILS

Mark	Symbol & Description	Part No.
	L701, L702 AF choke coil	ATH–133

CAPACITORS

Mark	Symbol & Description	Part No.
	C709, C710	ACG1025
	C721, C722	CCMSL100D50
	C707, C708	CCMSL101J50
	C705, C706	CEAS100M25
	C714, C715	CEAS100M50
	C703, C704	CEAS2R2M50
	C711, C712	CEAS330M25
	C717–C720	CFTXA823J50
	C701, C702	CKMYB471K50

RESISTORS

Mark	Symbol & Description	Part No.
⚠	R713–R716	RD¼PMF100J
	Other resistors	RD⅛PM□□□J

ENCODER assembly

SWITCH

Mark	Symbol & Description	Part No.
	S121 Rotaly encoder	ASX1006

CAPACITORS

Mark	Symbol & Description	Part No.
	C111, C112	CKDYX473M25

REGULATOR assembly

SEMICONDUCTORS

Mark	Symbol & Description	Part No.
	IC501	M5F7812L

CAPACITORS

Mark	Symbol & Description	Part No.
	C516	CEHAQ330M35
	C517	CEHAQ470M16

POWER SW assembly

SEMICONDUCTORS

Mark	Symbol & Description	Part No.
	Q109	RN1201
	D123	AEL1053

SWITCH

Mark	Symbol & Description	Part No.
	S122 Tact switch (POWER)	ASG–711

RESISTOR

Mark	Symbol & Description	Part No.
	R132	RD⅛PM471J

SUB TRANS assembly

SEMICONDUCTORS

Mark	Symbol & Description	Part No.
	IC550	M5278L56 (A)
	Q550	RN2203
	Q551	2SC2458
	D551	S5566
	D550, D555	1SS252

RELAY

Mark	Symbol & Description	Part No.
⚠	RY550 Relay	ASR1012

TRANSFORMER

Mark	Symbol & Description	Part No.
⚠	T2 Power transformer	ATT1066

CAPACITORS

Mark	Symbol & Description	Part No.
⚠	C553 (0.01 μF/400V)	ACG1003
	C550	CEAS101M10
	C551	CEAS102M25
	C552	CKDYF103Z50

RESISTORS

Mark	Symbol & Description	Part No.
⚠	R553	RD¼PMF330J
	Other resistors	RD⅛PM□□□J

HEADPHONE assembly

SEMICONDUCTORS

Mark	Symbol & Description	Part No.
	Q291	2SA1048
	Q290	2SC2458
	Q292, Q293	2SC2878

CAPACITOR

Mark	Symbol & Description	Part No.
	C290	CEAS4R7M50

RESISTORS

Mark	Symbol & Description	Part No.
⚠	R293, R294	RD½PMF471J
	R291, R292	RS2LMF331J
	Other resistors	RD⅛PM□□□J

OTHER

Mark	Symbol & Description	Part No.
	Jack (PHONES)	AKN1010

TONE. V. AUX assembly

CAPACITORS

Mark	Symbol & Description	Part No.
	C401, C402	CCMSL101J50
	C409, C410	CEAS100M25
	C403	CEAS470M10
	C413, C414	CFTXA124J50
	C415, C416	CFTXA153J50
	C404	CKCYX104M25
	C405	CKDYF473Z50
	C407, C408	CQMA303J50
	C411, C412	CQMA392J50

RESISTORS

Mark	Symbol & Description	Part No.
	VR401, VR402 Variable resistors (100k×2) (BASS, TREBLE)	ACS1027
	Other resistors	RD⅛PM□□□J

OTHER

Mark	Symbol & Description	Part No.
	Pin jack 1P	AKB1082

5. ADJUSTMENTS

SURROUND LEVEL ADJUSTMENT

• Preparation

1) Set the master VOLUME control to minimum.
2) Set the SURROUND INPUT BALANCE control (VR901) on the rear panel to the center click position.
3) Set SURROUND MODE to "OFF".
4) Input a 400 Hz, 260 mV sine wave into the Lch (or Rch) of the CD terminal.
5) Set the INPUT SELECTOR to "CD".

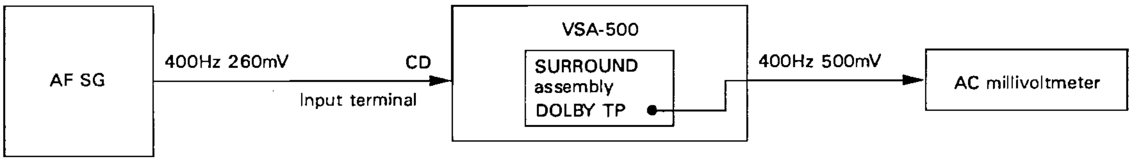

AF SG
400Hz 260mV
CD
Input terminal
VSA-500
SURROUND assembly
DOLBY TP
400Hz 500mV
AC millivoltmeter

Fig. 5-1. Connection diagram

• Adjustment Method

1) Adjust VR902 so that DOLBY TP output becomes 500 mV ± 25 mV.

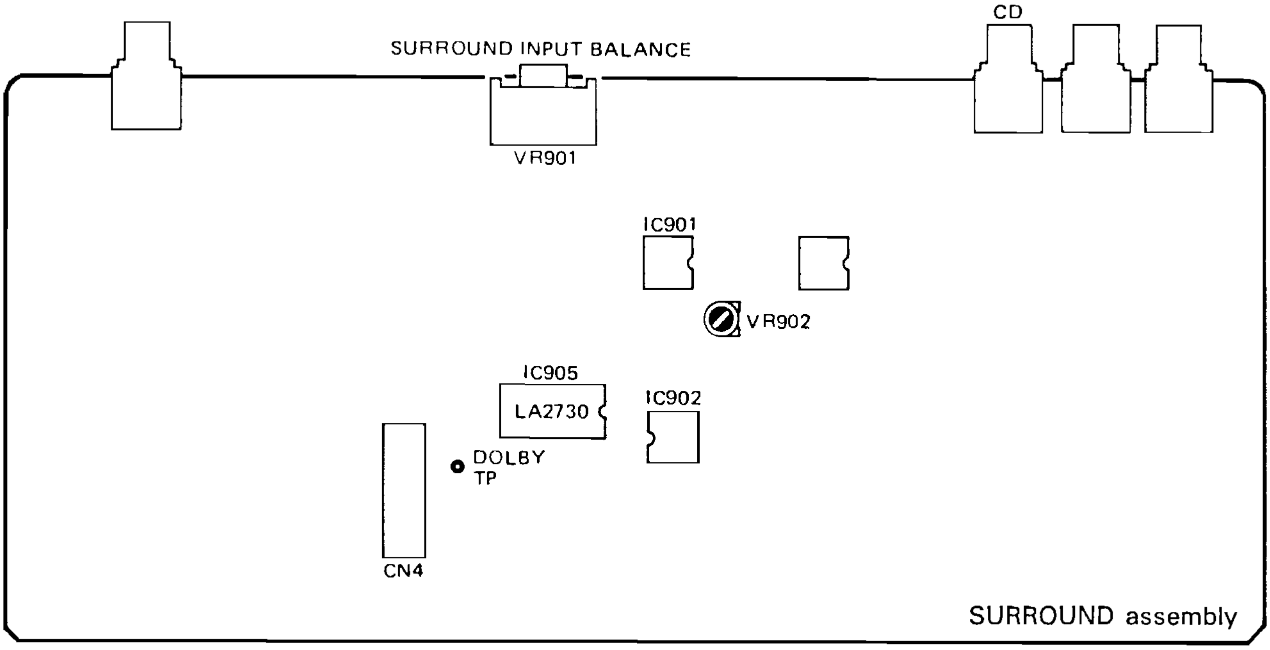

SURROUND INPUT BALANCE
CD
VR901
IC901
VR902
IC905
LA2730
IC902
DOLBY TP
CN4
SURROUND assembly

Fig. 5-2. Adjusting point

5. REGLAGES

REGLAGE DU NIVEAU D'AMBIANCE

• Préparation

1) Régler le VOLUME principal au minimum.
2) Placer le réglage SURROUND INPUT BALANCE (VR901) au panneau arrière sur la position déclic central.
3) Spécifier le mode SURROUND sur "OFF".
4) Entrer une onde sinusoïdale de 260 mV, 400 Hz au canal gauche (ou canal droit) du terminal du CD.
5) Positionner is sélecteur INPUT SELECTORE sur "CD".

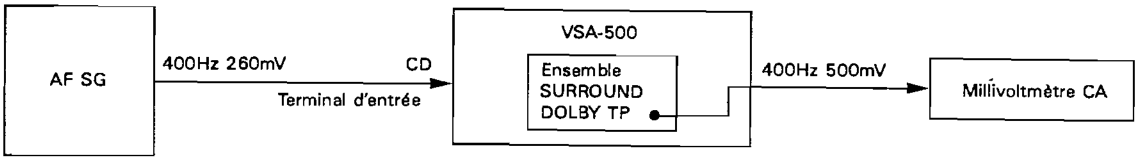

AF SG
400Hz 260mV
CD
Terminal d'entrée
VSA-500
Ensemble SURROUND DOLBY TP
400Hz 500mV
Millivoltmètre CA

Fig. 5-1. Schéma des connexions

• Méthode de réglage

1) Régler la résistance variable VR902 afin que la sortie DOLBY TP devienne 500 mV ± 25 mV.

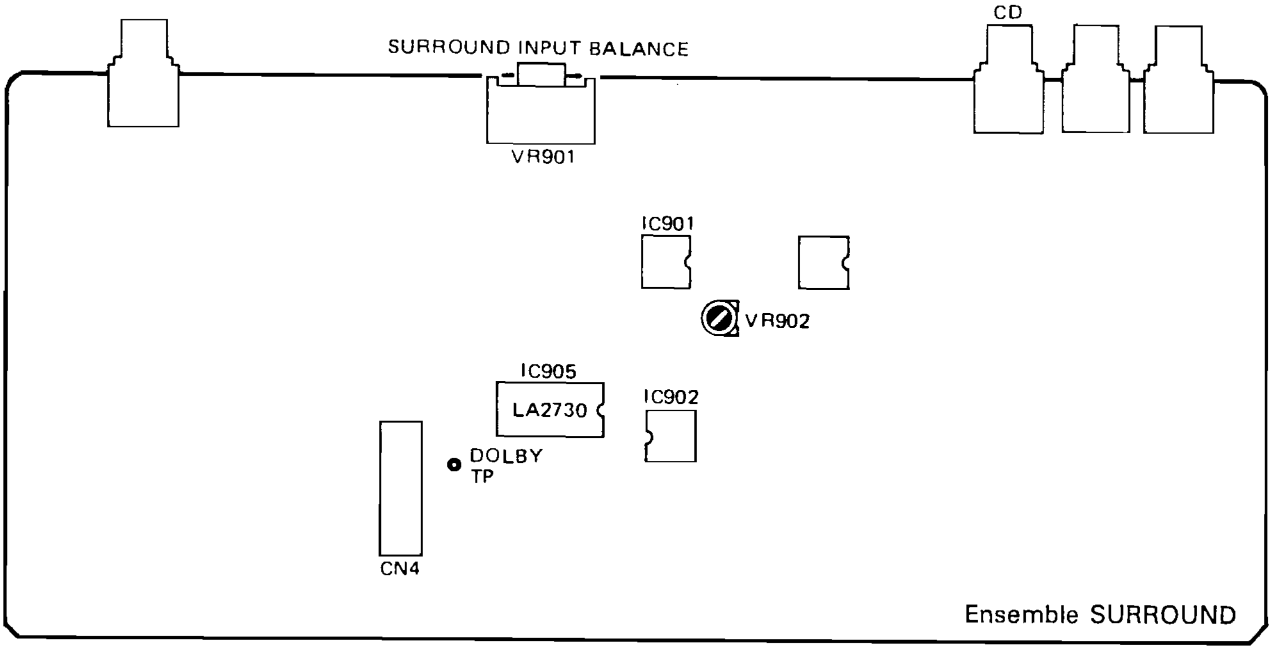

CD
SURROUND INPUT BALANCE
VR901
IC901
VR902
IC905
LA2730
IC902
DOLBY TP
CN4
Ensemble SURROUND

Fig. 5-2. Point de réglage

5. AJUSTES

AJUSTE DEL NIVEL DE SONIDO ENVOLVENTE

• Preparación

1) Coloque el control VOLUME al mínimo.
2) Coloque el control SURROUND INPUT BALANCE (VR901) del panel trasero en su posición central de retén.
3) Coloque SURROUND MODE en OFF.
4) Ingrese una onda sinusoidal de 400 Hz y 260 mV por el canal izquierdo o derecho del terminal de „CD“.
5) Coloque el selector de entrada en „CD“.

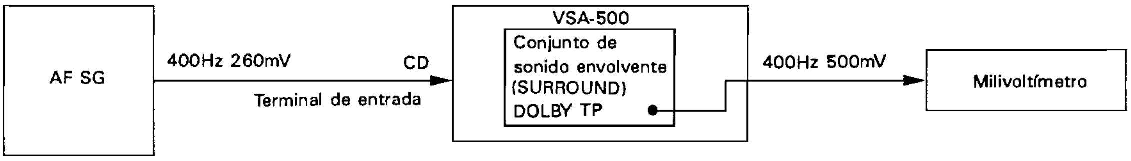

AF SG
400Hz 260mV
CD
Terminal de entrada
VSA-500
Conjunto de sonido envolvente (SURROUND)
DOLBY TP
400Hz 500mV
Milivoltímetro

Fig. 5-1. Diagrama de conexión

• Método de ajuste

1) Ajuste VR902 de modo que la salida por DOLBY TP sea 500 mV ± 25 mV.

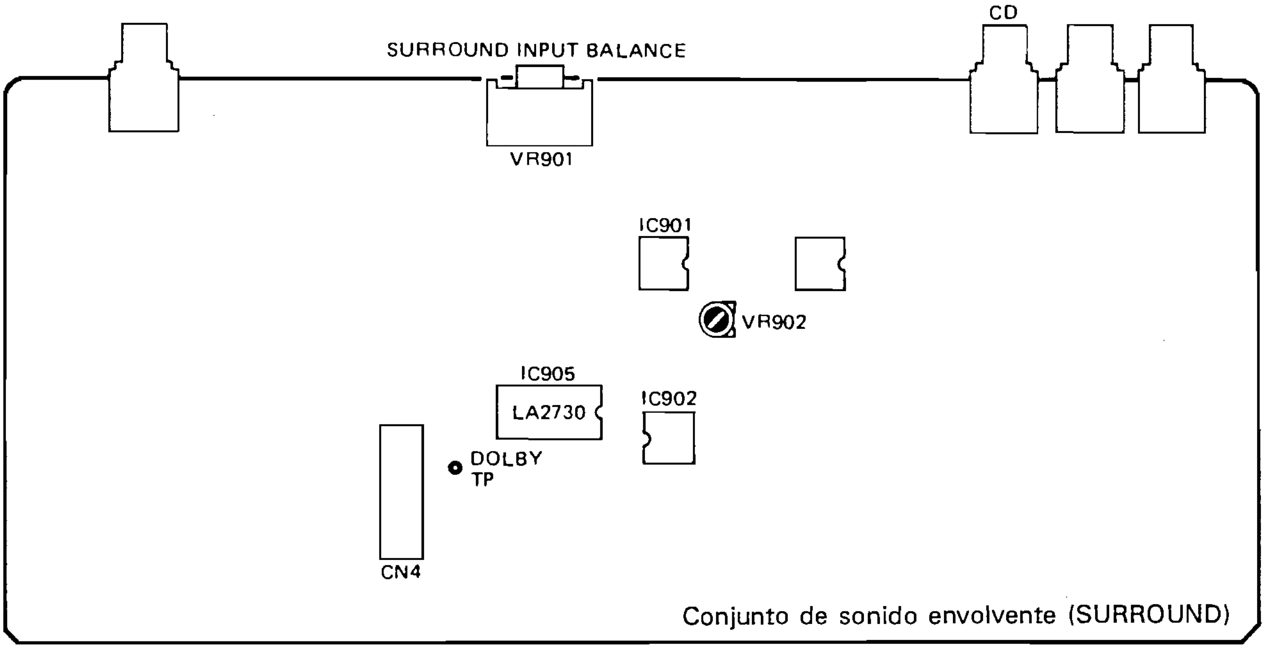

CD
SURROUND INPUT BALANCE
VR901
IC901
VR902
IC905
LA2730
IC902
DOLBY TP
CN4
Conjunto de sonido envolvente (SURROUND)

Fig. 5-2. Punto de ajuste

6. IC DESCRIPTIONS

- **PD5086−A (μ −COM)**

Pin No.	Pin Name	I/O	Pin Function		Active
1	Vcc	−	+5V power supply		——
2	AVss	−	Not used (connected to ground)		——
3	VREF	I	Not used (connected to ground)		——
4	D−A	O	Not used		——
5	PWM	O			——
6	L+R/$\overline{L-R}$	O	Surround mode control (refer to Table 6−1.)		H/L
7	SUR. MUTE	O	Goes to "H" when front panel MUTING switch is on, surround mode is off, and during function switching, etc.		H
8	DELAY 20mS	O	Delay time control (refer to Table 6−2.) for digital delay circuit		H/L
9	FRONT MUTE	O	Goes to "H" when front panel MUTING switch is on, and during function switching, etc.		H
10	DELAY 30mS	O	Delay time control (refer to Table 6−2.) for digital delay circuit		H/L
11	SUR. MODE B	O	Surround mode control (refer to Table 6−1.)		H/L
12	DELAY 15mS	O	Delay time control (refer to Table 6−2.) for digital delay circuit		H/L
13	SUR. MODE A	O	Surround mode control (refer to Table 6−1.)		H/L
14	VOL. CLK	O	Clock output for front volume IC801 (CXD1120P−1) and rear volume IC909 (CXD1120P−1)		⎍
15	F. VOL. ST	O	Strobe output for front volume IC801 (CXD1120P−1)		⎍
16	VOL. DATA	O	Data output for front volume IC801 (CXD1120P−1) and surround volume IC909 (CXD1120P−1)		H/L
17	SUR. VOL. ST	O	Strobe output for surround volume IC909 (CXD1120P−1)		⎍
18	POWER RY	O	Power relay control output (power ON at L)		L
19	FUNC. DATA	O	Input selector IC201 (TC9163N) control output	Data output	H/L
20	FUNC. CLK			Clock output	⎍
21	A. FUNC. ST	O	Input selector IC603 (TC9163N) control output	Strobe output	⎍
22	V. FUNC. ST	O	Input selector IC201 (TC9163N) control output	Strobe output	⎍
23	MUTE RY	O	Protection relay (RY201) control output L : sound output H : muted		L
24	NC	O	Not used (open)		——
25	REMOTE	I	Remote control signal input		H/L
26	AC	I	50/60 Hz AC input In back up state when no 50/60 Hz AC input		H/L
27	CNVss	I	Connected to ground		——
28	RESET	I	Reset input		L

Pin No.	Pin Name	I/O	Pin Function				Active
29	XIN	I	4.00 MHz x'tal connection pins				H/L
30	XOUT	O					
31	ϕ	O	Not used (open)				——
32	Vss	–	GND				——
33	VSA/$\overline{\text{AV}}$	I	Type selection input ("H" ······VSA−500)				H
34	POWER KEY	I	Power SW input				L
35	KEY IN 3	I	Key scan input				L
36	KEY IN 2						
37	KEY IN 1						
38	KEY IN 0						
39	ROTARY B	I	Rotary encoder connection pins Refer to Fig. 6−1	FRONT, SURROUND VOLUME	39pin	40pin	——
				UP	L	* ↑	
40	ROTARY A			DOWN	H	* ↑	
41	OUT2	O	Video input selector IC302 (TC4066BP) control	OUT 2 control			H
42	OUT1			OUT 1 control			
43	VCR2			VCR 2 control			
44	VCR1			VCR 1 control			
45	SOURCE	O	Video adaptor control	VIDEO ADAPTOR "OFF"			H
46	V. ADAPTOR	O		VIDEO ADAPTOR "ON"			
47	V. AUX	O	V. AUX control of video input selector IC301 (TC4066BP)				H
48	VDP	O	VDP control of video input selector IC301 (TC4066BP)				H
49	KEY OUT 4	O	Key scan output				L
50	KEY OUT 3						
51	KEY OUT 2						
52	KEY OUT 1						
53	KEY OUT 0						
54	PD12 DATA	O	IC102 (PD0012) control pins	Data output			H/L
55	PD12 $\overline{\text{CLK}}$			Clock output			¯↓_¯
56	PD12 $\overline{\text{CE}}$			Counter reset and chip enable output			L
57	PD12 $\overline{\text{RST}}$			Latch reset output			L
58	POWER	O	Control output for indicators	POWER IND. control			H
59	V. ADAPTOR			VIDEO ADAPTOR IND. control			
60	CD			CD IND. control			
61	PHONO			PHONO IND. control			
62	TUNER			TUNER IND. control			
63	TAPE1			TAPE1 IND. control			
64	TAPE2			TAPE2 IND. control			

* ↑ : rising edge

SURROUND MODE	L+R/$\overline{\text{L}-\text{R}}$ (6 pin)	SUR. MODE B (11 pin)	SUR. MODE A (13 pin)
SIMULATED	H	L	L
STADIUM	L	H	L
DOLBY	L	L	H

Table 6−1 SURROUND MODE CONTROL

DELAY TIME	DELAY 20mS (8 pin)	DELAY 30mS (10 pin)	DELAY 15mS (12 pin)
15mS	L	L	H
20mS	H	L	L
30mS	L	H	L

Table 6−2 DELAY TIME CONTROL

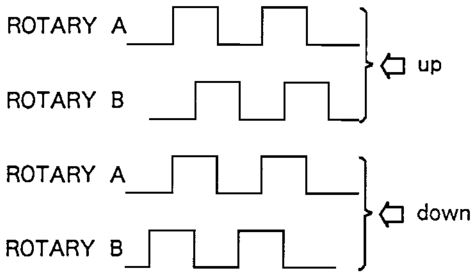

ROTARY A
ROTARY B
up
ROTARY A
ROTARY B
down

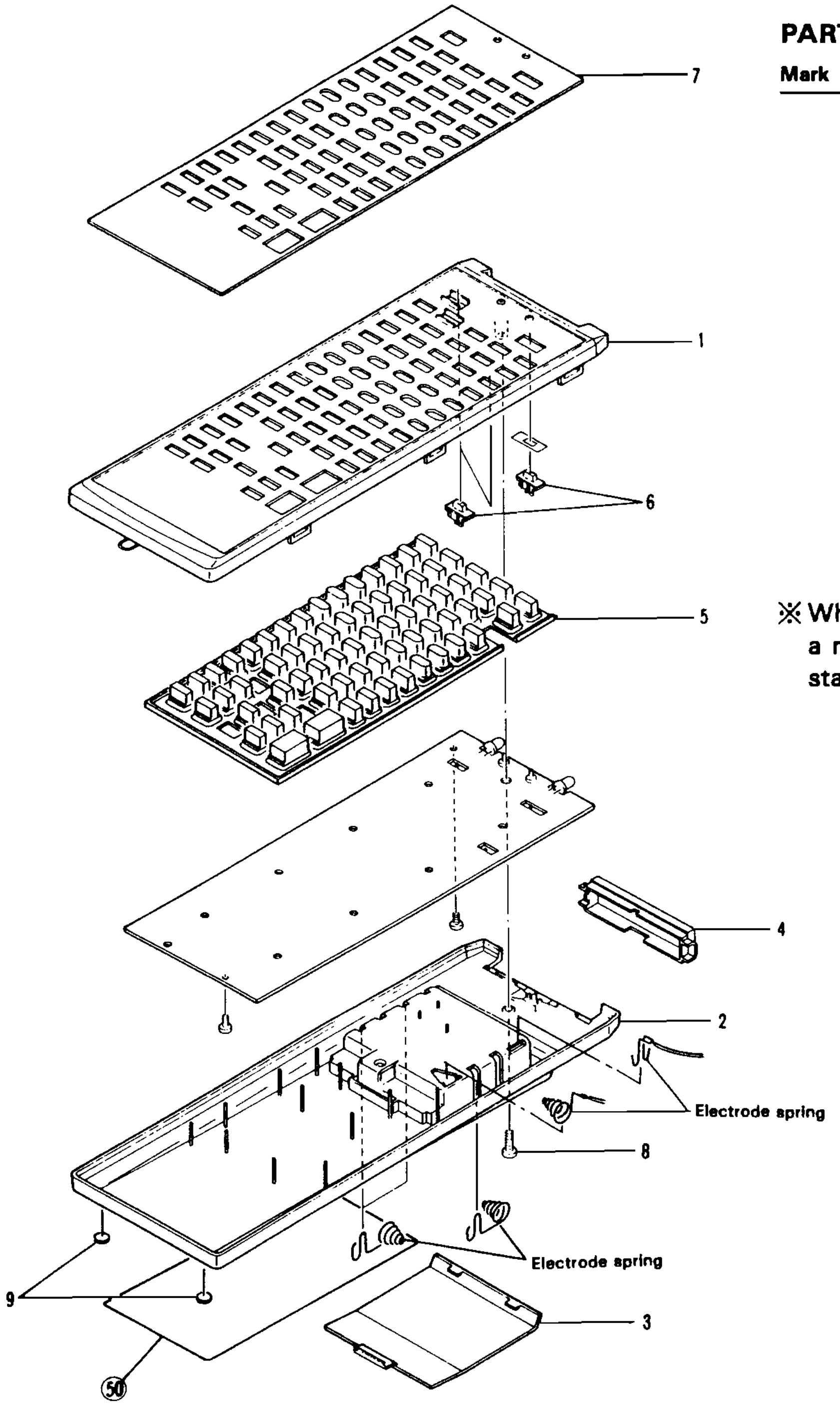
Fig. 6−1

7. PROGRAMABLE REMOTE CONTROL UNIT (AXD1099)

7.1 EXPLODED VIEWS AND PARTS LIST

NOTES:

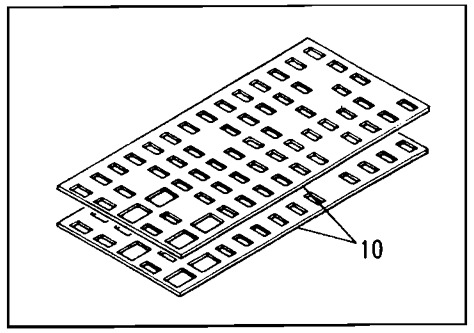
- *Parts without part number cannot be supplied.*
- *The ⚠ mark found on some component parts indicates the importance of the safety factor of the part. Therefore, when replacing, be sure to use parts of identical designation.*
- *Parts marked by "◉" are not always kept in stock. Their delivery time may be longer than usual or they may be unavailable.*



PARTS LIST OF EXPLODED VIEWS

Mark	No.	Parts No.	Description
	1	AZH1033	Case (A)
	2	AZH1034	Case (B)
	3	AZH1035	Case (C)
	4	AZN1400	Filter
	5	AZA1086	Rubber switch
	6	AZS1042	Knob (AUDIO/VIDEO /AUX, USE/LEARN, DAT/TAPE)
	7	AZA1183	Name plate
	8	AZB1124	Screw
	9	AZN1401	Foot
	10	AAK1439	Sheet
	50		Rear name plate

※When replacing the case No.2 (B) (AZH1034) by a new one, remove all electrode springs and install them into the new case (B).



7.2 ELECTRICAL PARTS LIST

NOTES:

- *Parts without part number cannot be supplied.*
- *Parts marked by "◉" are not always kept in stock. Their delivery time may be longer than usual or they may be unavailable.*
- *The ⚠ mark found on some component parts indicates the importance of the safety factor of the part. Therefore, when replacing, be sure to use parts of identical designation.*
- *When ordering resistors, first convert resistance values into code form as shown in the following examples.*

Ex. 1 *When there are 2 effective digits (any digit apart from 0), such as 560 ohm and 47k ohm (tolerance is shown by J = 5%, and K = 10%).*

560Ω   56 × 10¹   561..........................RD1/4PS $\boxed{5}\ \boxed{6}\ \boxed{1}$ *J*
47kΩ   47 × 10³   473..........................RD1/4PS $\boxed{4}\ \boxed{7}\ \boxed{3}$ *J*
0.5Ω   0R5..RN2H $\boxed{0}\ \boxed{R}\ \boxed{5}$ *K*
1Ω   010...RS1P $\boxed{0}\ \boxed{1}\ \boxed{0}$ *K*

Ex. 2 *When there are 3 effective digits (such as in high precision metal film resistors).*

5.62kΩ   562 × 10¹   5621........................RN1/4SR $\boxed{5}\ \boxed{6}\ \boxed{2}\ \boxed{1}$ *F*

SEMICONDUCTORS

Mark	Symbol & Description	Part No.
	IC01	PD5111
	IC02	AZC1045
	IC03	AZC1046
	IC04	AZC1047
	IC05	AZC1048
	Q01, Q02	AZC1050
	Q03, Q04	AZC1051
	Q05	AZC1052
	D01, D02, D07 – D14	AZC1056
	D03 – D06	AZC1049
	PHD01	AZC1055
	LED01, LED02	AZC1054
	IED01, IED02	AZC1053

SWITCH

Mark	Symbol & Description	Part No.
	S01 Slide switch (AUDIO/ VIDEO/AUX)	AZC1079
	S02, S03 Slide switch (USE/ LEARN, DAT/TAPE)	AZC1080
	S04 Tact switch (RESET)	AZC1081

CAPACITORS

Mark	Symbol & Description	Part No.
	C01 (200P)	AZC1058
	C02 (33P)	AZC1059
	C03, C04 (0.001μF)	AZC1062
	C05, C06 (20P)	AZC1060
	C07 Electrolytic capacitor (4.7/6V)	AZC1252
	C08 (0.01)	AZC1061
	C09, C10 Electrolytic capacitor (100 /6V)	AZC1251
	C11 (0.01)	AZC1063

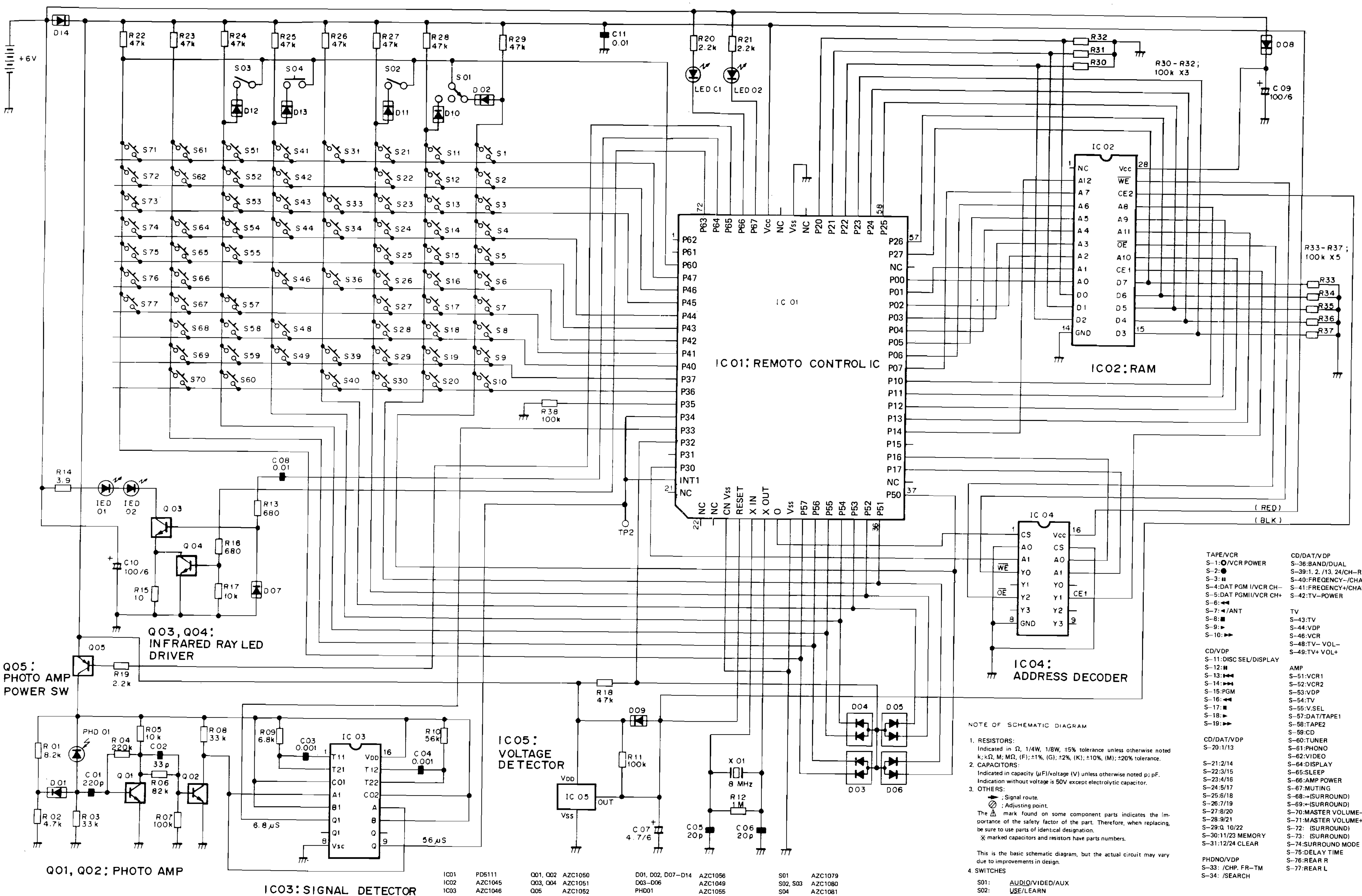
RESISTORS

Mark	Symbol & Description	Part No.
	R01 (8.2K)	AZC1064
	R02 (4.7K)	AZC1065
	R03, R08 (33K)	AZC1066
	R04 (220K)	AZC1067
	R05, R17 (10K)	AZC1068
	R06 (82K)	AZC1069
	R07, R11, R30 – R38 (100K)	AZC1073
	R09 (6.8K)	AZC1070
	R10 (56K)	AZC1071
	R12 (1M)	AZC1072
	R13, R16 (680Ω)	AZC1075
	R14 (3.9Ω)	AZC1078
	R15 (10Ω)	AZC1076
	R18, R22 – R29 (47K)	AZC1077
	R19 – R21 (2.2K)	AZC1074

OTHERS

Mark	Symbol & Description	Part No.
	X1 Resonator (8MHz)	AZC1057

7.3 SCHEMATIC DIAGRAM


A
B
C
D
+6V
D14
R22 47k
R23 47k
R24 47k
R25 47k
R26 47k
R27 47k
R28 47k
R29 47k
C11 0.01
R20 2.2k
R21 2.2k
LED01
LED02
R32
R31
R30
R30 - R32; 100k X3
D08
C09 100/6
S03
S04
S02
S01
D02
D12
D13
D11
D10
S1–S77
IC02
NC
A12
A7
A6
A5
A4
A3
A2
A1
A0
D0
D1
D2
GND
Vcc
WE
CE2
A8
A9
A11
OE
A10
CE1
D7
D6
D5
D4
D3
IC02: RAM
R33-R37; 100k X5
R33
R34
R35
R36
R37
IC01
IC01: REMOTO CONTROL IC
P62
P61
P60
P47
P46
P45
P44
P43
P42
P41
P40
P37
P36
P35
P34
P33
P32
P31
P30
INT1
NC
P63
P64
P65
P66
P67
Vcc
NC
Vss
NC
P20
P21
P22
P23
P24
P25
P26
P27
NC
P00
P01
P02
P03
P04
P05
P06
P07
P10
P11
P12
P13
P14
P15
P16
P17
NC
P50
CN Vss
RESET
X IN
X OUT
O
Vss
P57
P56
P55
P54
P53
P52
P51
R38 100k
TP2
(RED)
(BLK)
IC04
CS
A0
A1
Y0
Y1
Y2
Y3
GND
Vcc
CS
A0
A1
Y0
Y1
Y2
Y3
WE
OE
CE1
IC04: ADDRESS DECODER
R14 3.9
IED01
IED02
Q03
Q04
C08 0.01
R13 680
R16 680
R17 10k
D07
C10 100/6
R15 10
Q03, Q04: INFRARED RAY LED DRIVER
Q05
Q05: PHOTO AMP POWER SW
R19 2.2k
PHD01
R01 8.2k
D01
R02 4.7k
C01 220p
R03 33k
R04 220k
R05 10k
C02 33p
R06 82k
Q01
Q02
R07 100k
R08 33k
Q01, Q02: PHOTO AMP
R09 6.8k
C03 0.001
IC03
T11
T21
C01
A1
B1
Q1
Q1
Vsc
VDD
T12
T22
C02
A
B
Q
Q
R10 56k
C04 0.001
6.8μS
56μS
IC03: SIGNAL DETECTOR
IC05: VOLTAGE DETECTOR
IC05
VDD
Vss
OUT
R18 47k
D09
R11 100k
C07 4.7/6
X01 8MHz
R12 1M
C05 20p
C06 20p
D04
D05
D03
D06

IC01	PD5111	Q01, Q02	AZC1050	D01, D02, D07–D14	AZC1056	S01	AZC1079
IC02	AZC1045	Q03, Q04	AZC1051	D03–D06	AZC1049	S02, S03	AZC1080
IC03	AZC1046	Q05	AZC1052	PHD01	AZC1055	S04	AZC1081
IC04	AZC1047			LED01, LED02	AZC1054		
IC05	AZC1048			IED01, IED02	AZC1053		

NOTE OF SCHEMATIC DIAGRAM

1. RESISTORS:
Indicated in Ω, 1/4W, 1/8W, ±5% tolerance unless otherwise noted k; kΩ, M; MΩ, (F); ±1%, (G); ±2%, (K); ±10%, (M); ±20% tolerance.
2. CAPACITORS:
Indicated in capacity (μF)/voltage (V) unless otherwise noted p; pF.
Indication without voltage is 50V except electrolytic capacitor.
3. OTHERS:
➡ ; Signal route.
⊘ ; Adjusting point.
The ⚠ mark found on some component parts indicates the importance of the safety factor of the part. Therefore, when replacing, be sure to use parts of identical designation.
※ marked capacitors and resistors have parts numbers.

This is the basic schematic diagram, but the actual circuit may vary due to improvements in design.

4. SWITCHES

S01: AUDIO/VIDED/AUX
S02: USE/LEARN
S03: DAT/TAPE
S04: RESET

The underlined indicates the switch position.

TAPE/VCR
S–1:○/VCR POWER
S–2:●
S–3:⏸
S–4:DAT PGM I/VCR CH–
S–5:DAT PGMII/VCR CH+
S–6:⏪
S–7:◀/ANT
S–8:■
S–9:▶
S–10:⏩

CD/VDP
S–11:DISC SEL/DISPLAY
S–12:⏸
S–13:⏮
S–14:⏭
S–15:PGM
S–16:⏪
S–17:■
S–18:▶
S–19:⏩

CD/DAT/VDP
S–20:1/13

S–21:2/14
S–22:3/15
S–23:4/16
S–24:5/17
S–25:6/18
S–26:7/19
S–27:8/20
S–28:9/21
S–29:Q. 10/22
S–30:11/23 MEMORY
S–31:12/24 CLEAR

PHDNO/VDP
S–33: /CHP. FR–TM
S–34: /SEARCH

CD/DAT/VDP
S–36:BAND/DUAL
S–39:1. 2. /13. 24/CH–RETURN
S–40:FREQENCY–/CHANNEL–
S–41:FREQENCY+/CHANNEL+
S–42:TV–POWER

TV
S–43:TV
S–44:VDP
S–46:VCR
S–48:TV– VOL–
S–49:TV+ VOL+

AMP
S–51:VCR1
S–52:VCR2
S–53:VDP
S–54:TV
S–55:V.SEL
S–57:DAT/TAPE1
S–58:TAPE2
S–59:CD
S–60:TUNER
S–61:PHONO
S–62:VIDEO
S–64:DISPLAY
S–65:SLEEP
S–66:AMP POWER
S–67:MUTING
S–68:→(SURROUND)
S–69:←(SURROUND)
S–70:MASTER VOLUME–
S–71:MASTER VOLUME+
S–72: (SURROUND)
S–73: (SURROUND)
S–74:SURROUND MODE
S–75:DELAY TIME
S–76:REAR R
S–77:REAR L

7.4 P. C. BOARD PATTERNS

NOTE :

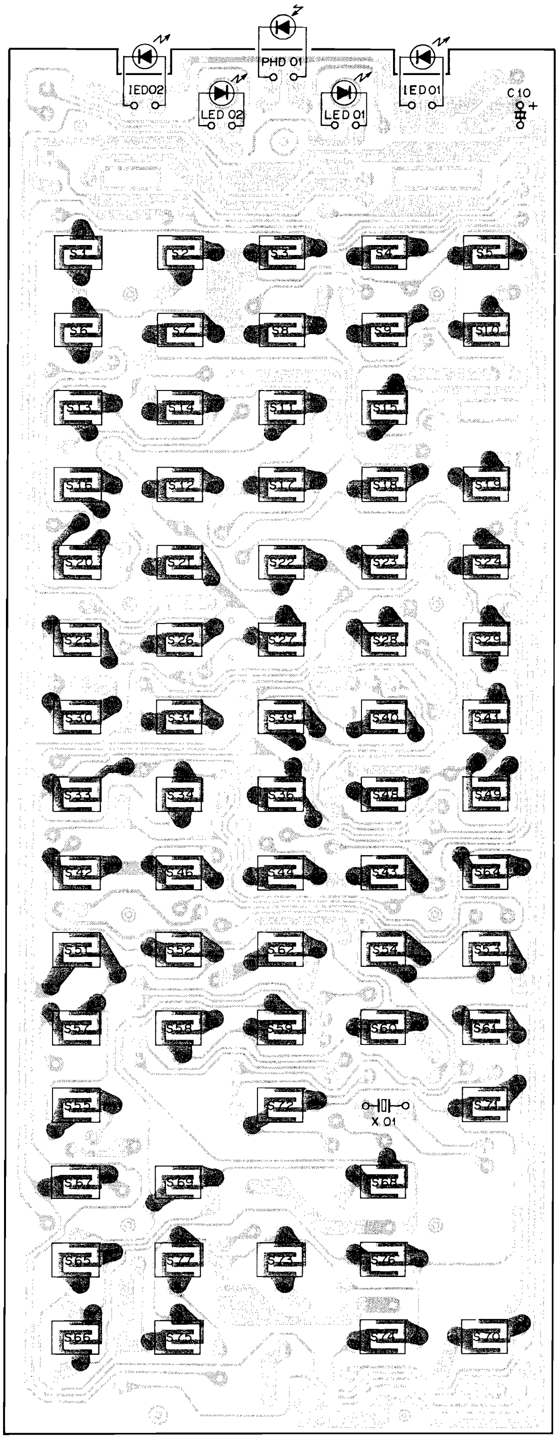
: Indicates a chip resistor.

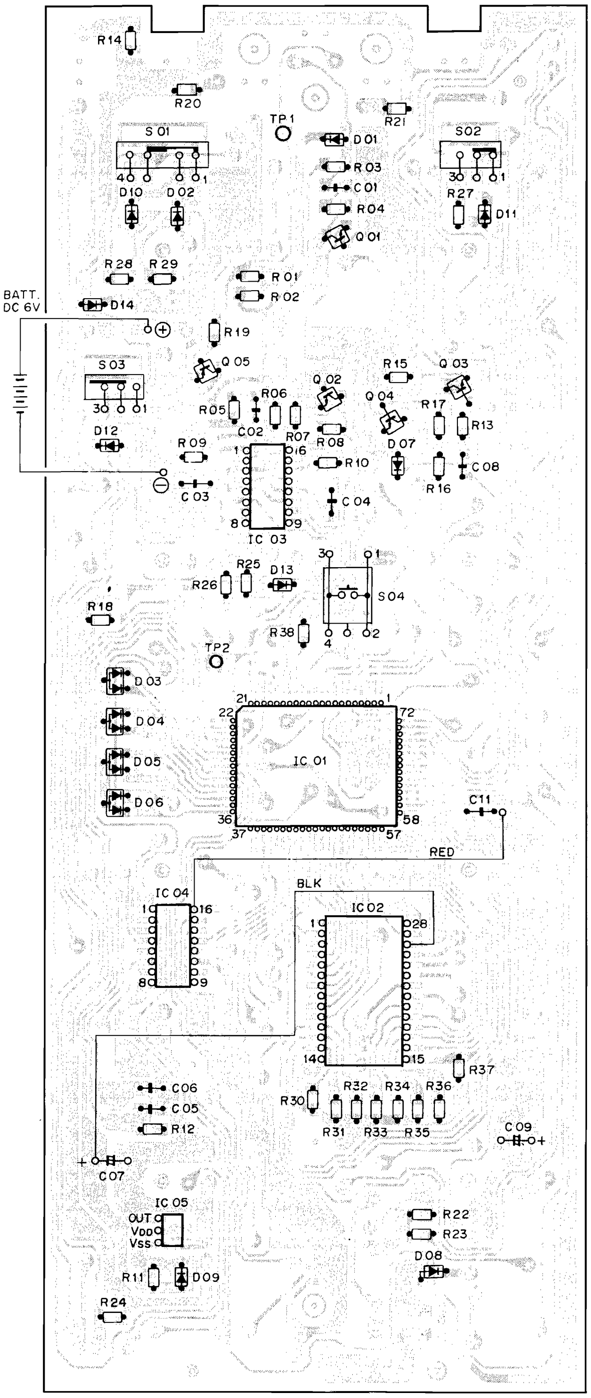
: Indicates a chip capacitor.

: Indicates a chip transistor.

: Indicates a chip diode.

A
B
C
D


IED02
LED 02
PHD 01
LED 01
IED01
C10
S1 S2 S3 S4 S5
S6 S7 S8 S9 S10
S13 S14 S11 S15
S16 S12 S17 S18 S19
S20 S21 S22 S23 S24
S25 S26 S27 S28 S29
S30 S31 S39 S40 S41
S33 S34 S36 S48 S49
S42 S46 S44 S43 S64
S51 S52 S62 S54 S53
S57 S58 S59 S60 S61
S55 S72 S71
X 01
S67 S69 S68
S65 S77 S73 S76
S66 S75 S74 S70


R14
R20
R21
TP1
S 01
4 0 1
D01
R03
C01
R04
Q01
S02
3 0 1
R27
D11
D10
D02
R28
R29
R01
R02
BATT.
DC 6V
D14
R19
S03
3 0 1
Q05
R06
Q02
R15
Q03
R05
R07
C02
Q04
R17
R13
D12
R09
R08
R10
D07
C08
R16
C03
1 16
8 9
IC 03
C04
R25
R26
D13
3 1
S04
4 2
R18
R38
TP2
D03
D04
D05
D06
21 1
22 72
IC 01
36 58
37 57
C11
RED
BLK
IC 04
1 16
8 9
IC02
1 28
14 15
R37
C06
C05
R12
R30
R32
R34
R36
R31
R33
R35
C09
C07
IC 05
OUT
VDD
Vss
R22
R23
D08
R11
D09
R24

7.5 IC DESCRIPTIONS

Pin No.	Pin Name	Function Name	I/O	Pin Function	Active
1	P6$_2$	N.C.		Not used	
2	P6$_1$	N.C.		Not used	
3	P6$_0$	KSC60	O	Key scan	L
4	P4$_7$	KSC47	O	Key scan	L
5	P4$_6$	KSC46	O	Key scan	L
6	P4$_5$	KSC45	O	Key scan	L
7	P4$_4$	KSC44	O	Key scan	L
8	P4$_3$	KSC43	O	Key scan	L
9	P4$_2$	KSC42	O	Key scan	L
10	P4$_1$	KSC41	O	Key scan	L
11	P4$_0$	KSC40	O	Key scan	L
12	P3$_7$	KSC37	O	Key scan	L
13	P3$_6$	KSC36	O	Key scan	L
14	P3$_5$	ERAMSW	I	External RAM presence determination SW	RAM when L
15	P3$_4$	ENVELOP	I	Remote control input (envelope)	L
16	P3$_3$	CARRIER	I	Remote control input (carrier)	H
17	P3$_2$	WAKEUP	I	Wakeup when key input	Falling edge
18	P3$_1$	N.C.		Not used	
19	P3$_0$	R/W	O	External RAM R/W	
20	INT$_1$	ENVELOP	I	Remote control input (envelope)	L
21	N. C.	N. C.		Not used	
22	N. C.	N. C.		Not used	
23	N. C.	N. C.		Not used	
24	CNVss	0V	I	GND	
25	RESET	RESET	I		L
26	X$_{IN}$	8MHz	I	8 MHz oscillator connection	
27	X$_{OUT}$	8MHz	O	8 MHz oscillator connection	
28	ϕ	N.C.			
29	Vss	0V	I	GND	
30	P5$_7$	KIN57	I	Key input	L
31	P5$_6$	KIN56	I	Key input	L
32	P5$_5$	KIN55	I	Key input	L
33	P5$_4$	KIN54	I	Key input	L
34	P5$_3$	KIN53	I	Key input	L
35	P5$_2$	KIN52	I	Key input	L
36	P5$_1$	KIN51	I	Key input	L
37	P5$_0$	KIN50	I	Key input	L
38	N. C.	N. C.		Not used	
39	P1$_7$	ADRBUS15	O	Address bus	
40	P1$_6$	ADRBUS14	O	Address bus	
41	P1$_5$	ADRBUS13	O	Not used	
42	P1$_4$	ADRBUS12	O	Address bus	
43	P1$_3$	ADRBUS11	O	Address bus	
44	P1$_2$	ADRBUS10	O	Address bus	
45	P1$_1$	ADRBUS9	O	Address bus	

Pin No.	Pin Name	Function Name	I/O	Pin Function	Active
46	P1 0	ADRBUS8	O	Address bus	
47	P0 7	ADRBUS7	O	Address bus	
48	P0 6	ADRBUS6	O	Address bus	
49	P0 5	ADRBUS5	O	Address bus	
50	P0 4	ADRBUS4	O	Address bus	
51	P0 3	ADRBUS3	O	Address bus	
52	P0 2	ADRBUS2	O	Address bus	
53	P0 1	ADRBUS1	O	Address bus	
54	P0 0	ADRBUS0	O	Address bus	
55	N. C.	N. C.		Not used	
56	P2 7	DATBUS0	I/O	Data bus	
57	P2 6	DATBUS1	I/O	Data bus	
58	P2 5	DATBUS2	I/O	Data bus	
59	P2 4	DATBUS3	I/O	Data bus	
60	P2 3	DATBUS4	I/O	Data bus	
61	P2 2	DATBUS5	I/O	Data bus	
62	P2 1	DATBUS6	I/O	Data bus	
63	P2 0	DATBUS7	I/O	Data bus	
64	N. C.	N. C		Not used	
65	Vss			GND	
66	N. C.	N. C		Not used	
67	Vcc		I	5V power supply	
68	P6 7	SETLED	O	Reception induction indication LED	L
69	P6 6	TRNLED	O	Transmission indication LED	L
70	P6 5	PHTAMP	O	Photo−amplifier	L
71	P6 4	GTOUT	O	Remote control output	H
72	P6 3	GATE	O	Remote control output gain	H

8. FOR SD TYPE

8.1 CONTRAST OF MISCELLANEOUS

NOTES :

- Parts without part number cannot be supplied.
- The ⚠ mark found on some component parts indicates the impotance of the safety factor of the part. Therefore, when replacing, be sure to use parts of identical designation.
- Parts marked by "⊙" are not always kept in stock. Their delivery time may be longer than usual or they may be unavailable.

The VSA−500/SD type is the same as the VSA−500/HE type with the exception of the following sections.

Mark	Symbol & Description	Part No.		Remarks
		VSA−500/HE type	VAS−500/SD type	
	POWER V.SEL assembly	AWZ2083	AWZ2222	
	SUB TRANS assembly	Non supply	non supply	
⚠	AC Power cord	ADG1019	ADG1016	
⚠	FU1, FU3, FU4 Fuse (T3.15A)	AEK−042	······	
⚠	FU1, FU2 Fuse (3.15A)	······	AEK−124	
⚠	FU3, FU4 Fuse (4A)	······	AEK−125	
⚠	1P AC Outlet	······	AKP1015	
⚠	S2 Voltage selector (AC110/120−127/220/240V)	······	AKX−507	
⚠	S3 Voltage selector (AC120−127/220/240V)	······	AKX1004	
⚠	T1 Power transformer (AC220/240V)	ATS1193	······	
⚠	T1 Power transformer (AC110/120−127/220/240V)	······	ATS1194	
	Remote control unit	AXD1099	AXD1098	
	Operating instructions (Dutch/Swedish/Spanish/Portuguese)	ARC1162	······	
	Operating instructions (English/French/German/Italian)	ARE1114	······	
	Operating instructions (English)	······	ARB1165	

POWER V.SEL ASSEMBLY

The POWER V.SEL assembly (AWZ2222) is the same as the POWER V.SEL assembly (AWZ2083) with the exception of the following sections.

Mark	Symbol & Description	Part No.		Remarks
		AWZ2083/HE type	AWZ2222/SD type	
	D517	······	S5566	
	C309	······	CEAS470M10	
	R313	······	RD ⅛ PM680J	
	R529	······	RD ⅛ PM472J	
	DIN socket 5P (RF MODULATOR)	······	AKP−081	

SUB TRANS ASSEMBLY

The SUB TRANS assembly (SD type) is the same as the SUB TRANS assembly (HE type) with the exception of the following sections.

Mark	Symbol & Description	Part No.		Remarks
		VSA−500／HE type	VSA−500／SD type	
⚠	T2 Power transformer (AC220／240V)	ATT1066	……	
⚠	T2 Power transformer (AC110／120−127／220／240V)	……	ATT1015	

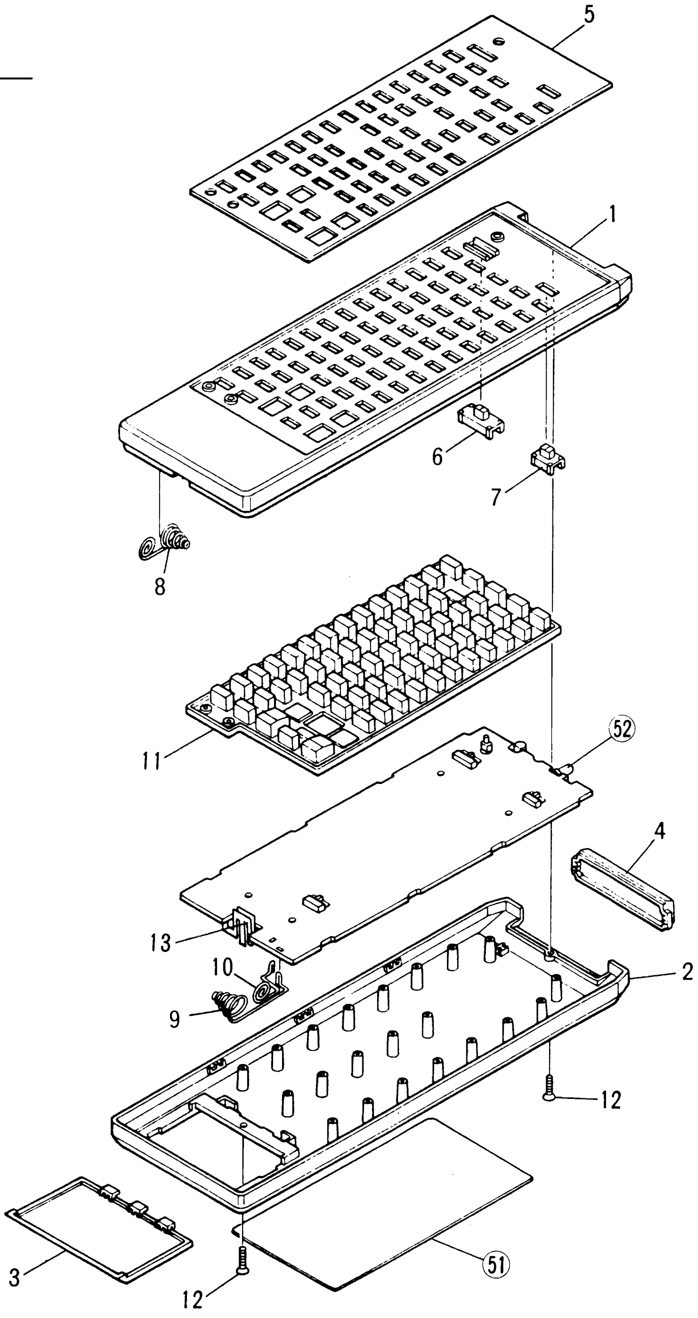
8.2 PROGRAMABLE REMOTE CONTROL UNIT (AXD1098)

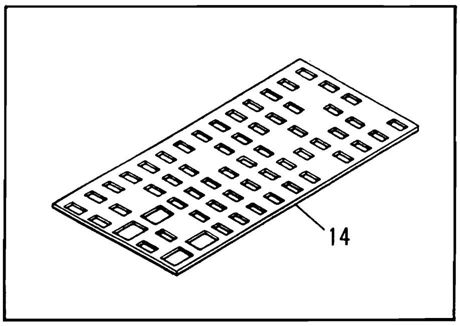
NOTES :

- Parts without part number cannot be supplied.
- The ⚠ mark found on some component parts indicates the impotance of the safety factor of the part. Therefore, when replacing, be sure to use parts of identical designation.
- Parts marked by "⊙" are not always kept in stock. Their delivery time may be longer than usual or they may be unavailable.

8.2.1 Exploded View and Parts List

Mark	No.	Part No.	Description
	1	AZN1827	Case (A)
	2	AZN1828	Case (B)
	3	AZN1829	Cover
	4	AZA1139	Filter
	5	AZA1166	Aluminum plate
	6	AZA1142	Knob (A)
	7	AZA1143	Knob (B)
	8	AZB1268	Terminal
	9	AZB1269	Terminal
	10	AZB1270	Terminal
	11	AZA1168	Rubber mold
	12	AZA1146	Screw
	13	AZS1074	Electrode plate (SW01)
	14	AZA1147	Sheet
	51		Label
	52		P. C. Board





8. 2. 2 Electrical Parts List

NOTES :

- Parts without part number cannot be supplied.
- Parts marked by "⊙" are not always kept in stock. Their delivery time may be longer than usual or they may be unavailable.
- The ⚠ mark found on some component parts indicates the impotance of the safety factor of the part. Therefore, when replacing, be sure to use parts of identical designation.
- When ordering resistors, first convert resistance values into code form as shown in the following examples.

Ex.1 When there are 2 effective digits (any digit apart from 0), such as 560 ohm and 47k ohm (tolerance is shown by J=5%, and K=10%).

560 Ω 56×10^1 561 ……………………RD1/4PS $\boxed{5}\boxed{6}\boxed{1}$ J
47k Ω 47×10^3 473 ……………………RD1/4PS $\boxed{4}\boxed{7}\boxed{3}$ J
0.5 Ω 0R5……………………RN2H $\boxed{0}\boxed{R}\boxed{5}$ K
1 Ω 010……………………RS1P $\boxed{0}\boxed{1}\boxed{0}$ K

Ex.2 When there are 3 effective digits (such as in high precision metal film resistors).

5.62k Ω 562×10^1 5621 …………………… RN1/4SR $\boxed{5}\boxed{6}\boxed{2}\boxed{1}$ F

SEMICONDUCTORS

Mark	Symbol & Description	Part No.
	IC1	PDG030-A
	IC2	AZC1232
	Q1	AZC1229
	Q2	AZC1230
	Q3	AZC1231
	D2	AZC1224
	D4	AZC1225
	D5	AZC1226
	D10	AZC1227
	D6-D9, D11	AZC1228

SWITCHES

Mark	Symbol & Description	Part No.
	SW1 Slide switch	AZS1073
	SW3, SW4 Slide switch	AZS1074
	SW01 Electrode plate	AZS1077

CAPACITORS

Mark	Symbol & Description	Part No.
	C6, C8, C10	AZC1220
	C7	AZC1221
	C4, C5	AZC1222
	C1, C2	AZC1253
	C3	AZC1254

RESISTORS

Mark	Symbol & Description	Part No.
	R3 (100k Ω, ¼)	AZC1210
	R7 (33k Ω, ¼)	AZC1211
	R11 (22k Ω, ¼)	AZC1212
	R10 (10k Ω, ¼)	AZC1213
	R5 (8.2k Ω, ¼)	AZC1214
	R6 (4.7k Ω, ¼)	AZC1215
	R9 (1k Ω, ¼)	AZC1216
	R4 (680 Ω, ¼)	AZC1217
	R8 (3.3M Ω, ¼)	AZC1218
	R2 (2.7 Ω, ¼)	AZC1219

OTHERS

Mark	Symbol & Description	Part No.
	X1 Ceramic resonator (2MHz)	AZC1223

8.2.3 P. C. Board Patterns

NOTE:

Indicates a chip resistor.

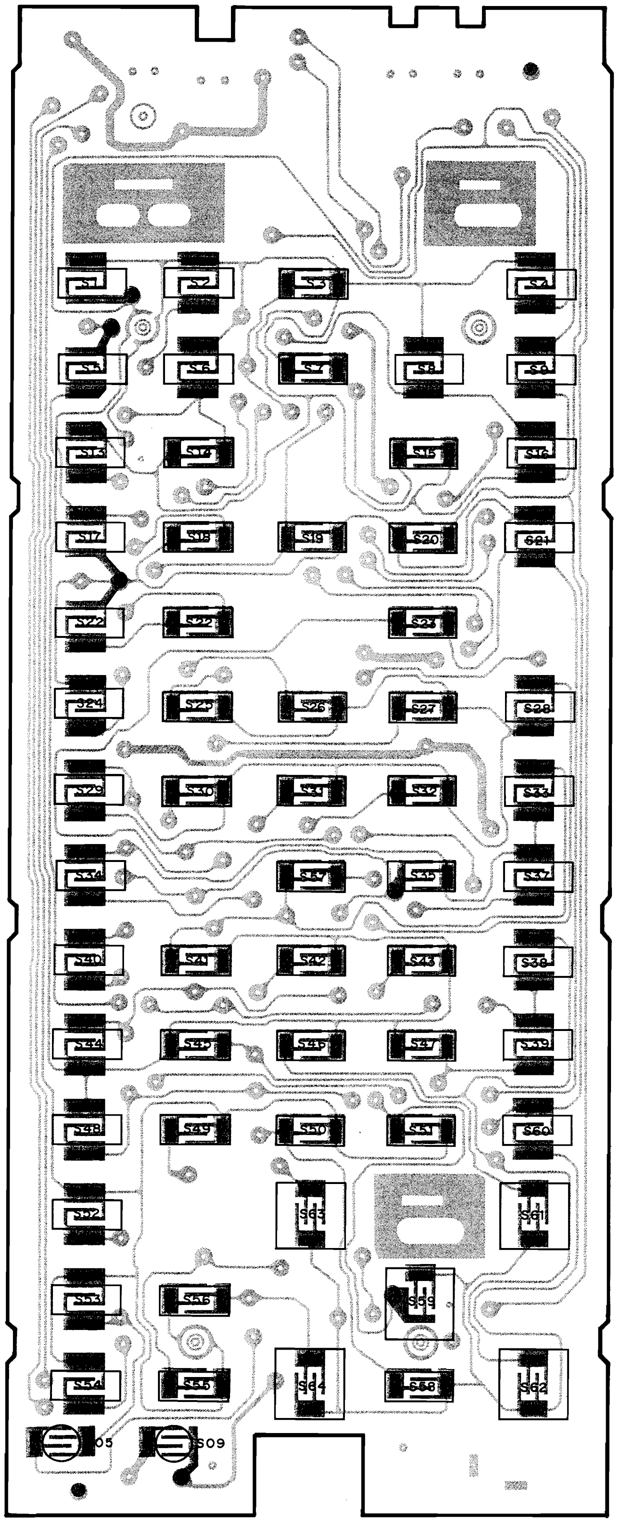
Indicates a chip capacitor.

Indicates a chip transistor.

Indicates a chip diode.

Indicates a chip inductor.

Diode


S1
S2
S3
S4
S5
S6
S7
S8
S9
S13
S14
S15
S16
S17
S18
S19
S20
S21
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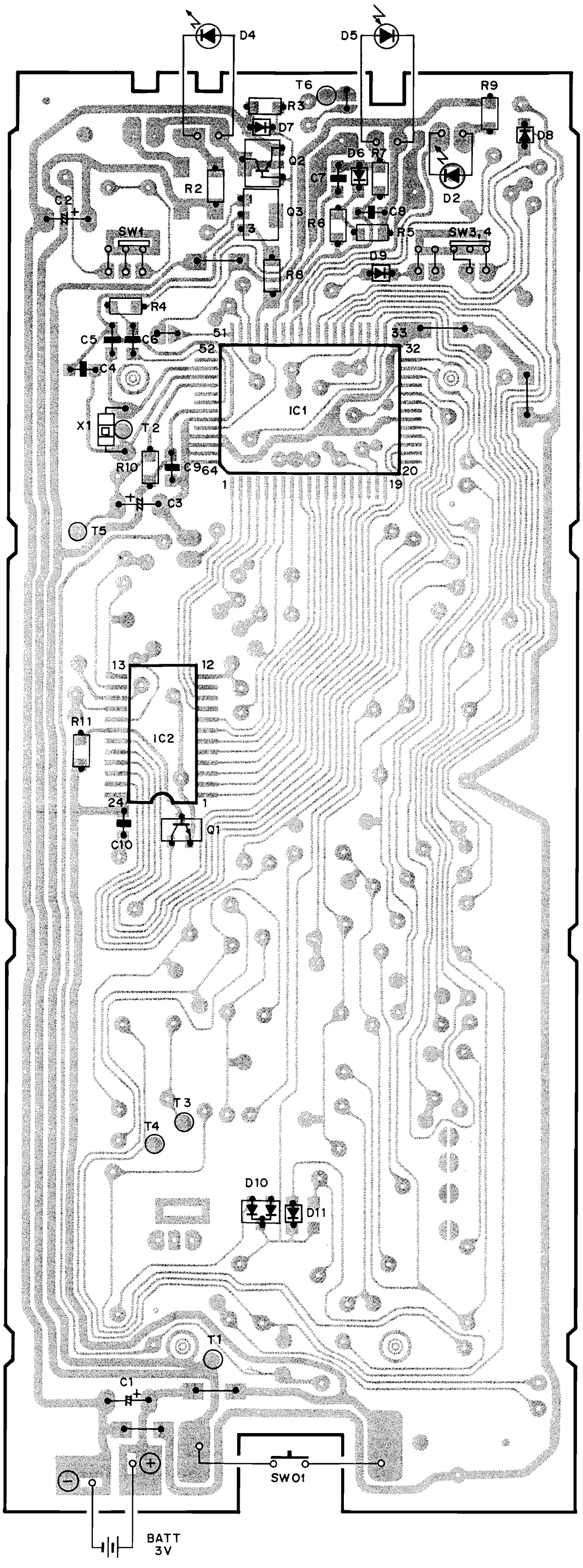
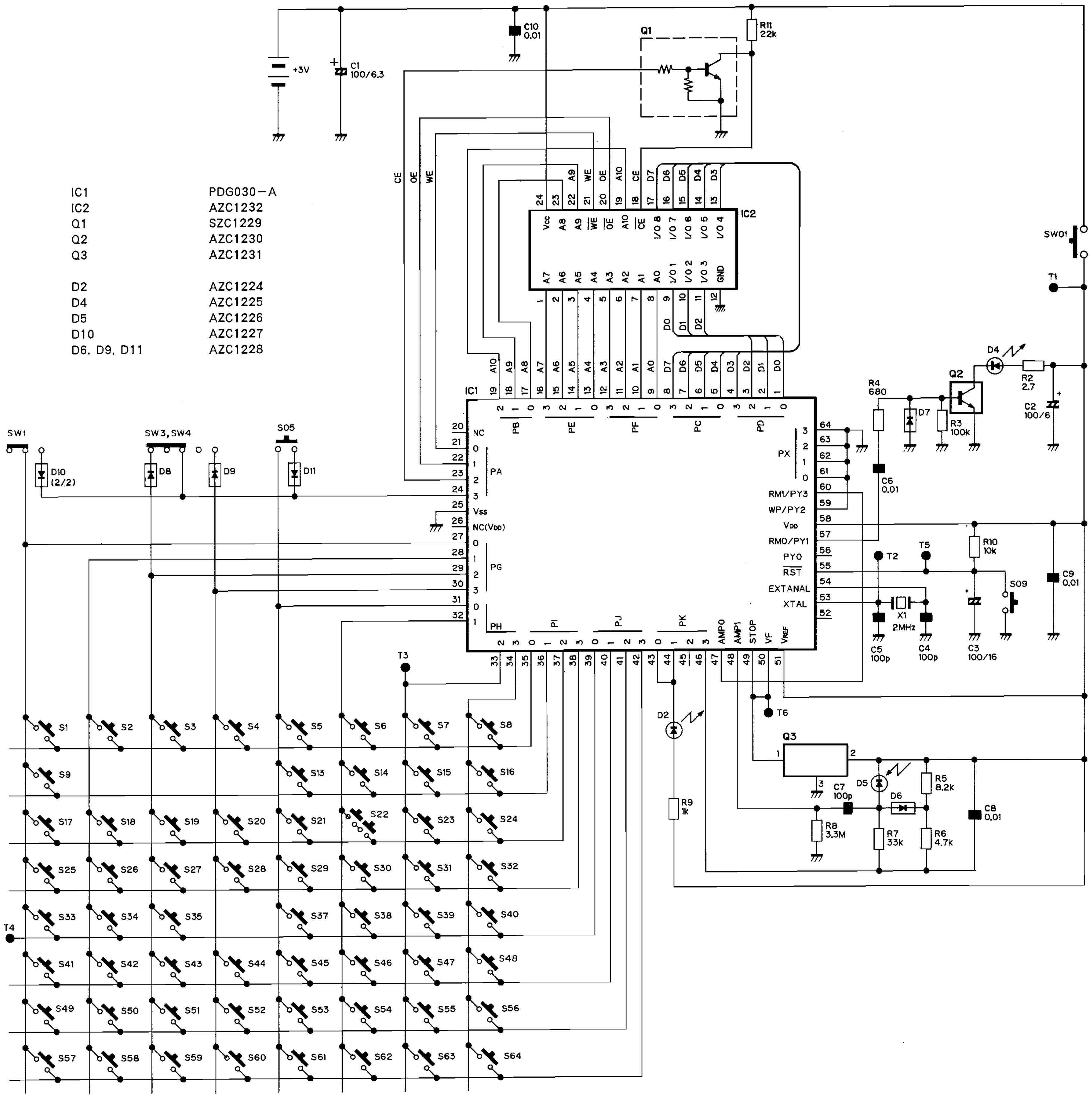
S55
S64
S58
S62
S05
S09


D4
D5
T6
R3
D7
R9
D8
Q2
D6
R7
C7
D2
R2
Q3
C8
C2
R6
R5
SW1
1
2
3
D9
SW3, 4
R8
R4
C5
C6
51
33
52
32
C4
IC1
X1
T2
R10
C9
64
20
1
19
C3
T5
13
12
R11
IC2
24
1
Q1
C10
T3
T4
D10
D11
T1
C1
SW01
BATT
3V

8.2.4 Schematic Diagram

IC1 PDG030-A
IC2 AZC1232
Q1 SZC1229
Q2 AZC1230
Q3 AZC1231

D2 AZC1224
D4 AZC1225
D5 AZC1226
D10 AZC1227
D6, D9, D11 AZC1228


+3V
C1 100/6.3
C10 0.01
Q1
R11 22k
IC2
IC1
CE
OE
WE
Vcc
GND
NC
Vss
NC(VDD)
PA
PB
PE
PF
PC
PD
PG
PH
PI
PJ
PK
PX
RM1/PY3
WP/PY2
VDD
RM0/PY1
PY0
RST
EXTANAL
XTAL
AMP0
AMP1
STOP
VF
VREF
SW1
D10 (2/2)
SW3, SW4
D8
D9
S05
D11
SW01
T1
T2
T3
T4
T5
T6
D4
R2 2.7
C2 100/6
Q2
R4 680
D7
R3 100k
C6 0.01
R10 10k
S09
X1 2MHz
C5 100p
C4 100p
C3 100/16
C9 0.01
D2
R9 1k
Q3
C7 100p
D5
R5 8.2k
D6
R8 3.3M
R7 33k
R6 4.7k
C8 0.01
S1
S2
S3
S4
S5
S6
S7
S8
S9
S13
S14
S15
S16
S17
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S63
S64

1. RESISTORS:
   Indicated in Ω, 1/4W, 1/6W, 1/8W, ±5% tolerance unless otherwise noted k; kΩ, M; MΩ, (F); ±1%, (G); ±2%, (K); ±10%, (M); ±20% tolerance.
2. CAPACITORS:
   Indicated in capacity (μF)/voltage (V) unless otherwise noted p; pF. Indication without voltage is 50V except electrolytic capacitor.
3. VOLTAGE CURRENT:
   ▭ ; DC voltage (V) at no input signal
   ▭ Value in ( ) is DC voltage at rated power.
4. OTHERS:
   ➡ ; Signal route.
   ⊘ ; Adjusting point.
   The ⚠ mark found on some component parts indicates the importance of the safety factor of the part. Therefore, when replacing, be sure to use parts of identical designation.
   ※ marked capacitors and resistors have parts numbers.

5. SWITCHES (Underline indicates switch position)

S1 : POWER (AMP)
S2 : POWER (TV)
S3 : POWER (VCR)
S4 : SLEEP (AMP/TV)
S5 : TAPE2/VCR2
S6 : TAPE1/VCR1
S7 : TUNER/VDP
S8 : PHONO/VIDEO
S9 : CD/V.ADPT
S10 : ————
S11 : ————
S12 : ————
S13 : PROGRAM (CD/VDP)
S14 : CD DISC/VDP DISP.CALL
S15 : CD ⏮/CHP/FR−TM
S16 : CD ⏭/VDP SEARCH
S17 : ⏪ (CD/VDP)
S18 : ⏸ (CD/VDP)
S19 : ■ (CD/VDP)
S20 : ► (CD/VDP)
S21 : ⏩ (CD/VDP)
S22 : REC (TAPE II/VDP)
S23 : ⏸ (TAPE II/VCR)
S24 : ⏪ (TAPE II/VCR)
S25 : DECK II ◄/TV/VCR VCR)
S26 : ■ (DECK II/VCR)
S27 : ► (DECK II/VCR)
S28 : ⏩ (DECK II/VCR)
S29 : DECK I ⏪/TV (TV FUNC.)
S30 : DECK I ◄/VDP (TV FUNC.)
S31 : DECK I ■/VCR (TV FUNC.)
S32 : DECK I ►/VCR CH−
S33 : DECK I ⏩/VCR CH+
S34 : CD +10/TV DISP. CALL
S35 : TUNER BAND/TV DUAL
S36 : ————
S37 : TUNER STATION+/TV CH+
S38 : TV FUNCTION
S39 : TV VOL+
S40 : 1/13 (TUNER/CD)
S41 : 2/14 (TUNER/CD)
S42 : 3/15 (TUNER/CD)
S43 : 4/16 (TUNER/CD)
S44 : 5/17 (TUNER/CD)
S45 : 6/18 (TUNER/CD)
S46 : 7/19 (TUNER/CD)
S47 : 8/20 (TUNER/CD)
S48 : 9/21 (TUNER/CD)
S49 : 0/10/22 (TUNER/CD)
S50 : 11/23/MEMORY (TUNER/CD)
S51 : 12/24/CLR (TUNER/CD)
S52 : SUR MODE
S53 : DELAY TIME (AMP)
S54 : MUTING (AMP)
S55 : REAR BALANCE L (AMP)
S56 : BALANCE L (AMP)
S57 : 1・12/13・24 (TUNER)
S58 : REAR BALANCE R (AMP)
S59 : BALANCE R (AMP)
S60 : TV VOL− (AMP)
S61 : MASTER VOL+ (AMP)
S62 : MASTER VOL− (AMP)
S63 : SURROUND VOL− (AMP)
S64 : SURROUND VOL+ (AMP)

SW1 : AUDIO−VIDEO
SW3, SW4 : RECALL−USE−LEARN
S05 : M.CLR
S09 : RESET
SW01 : REMOTE POWER

8.2.5. IC Descriptions

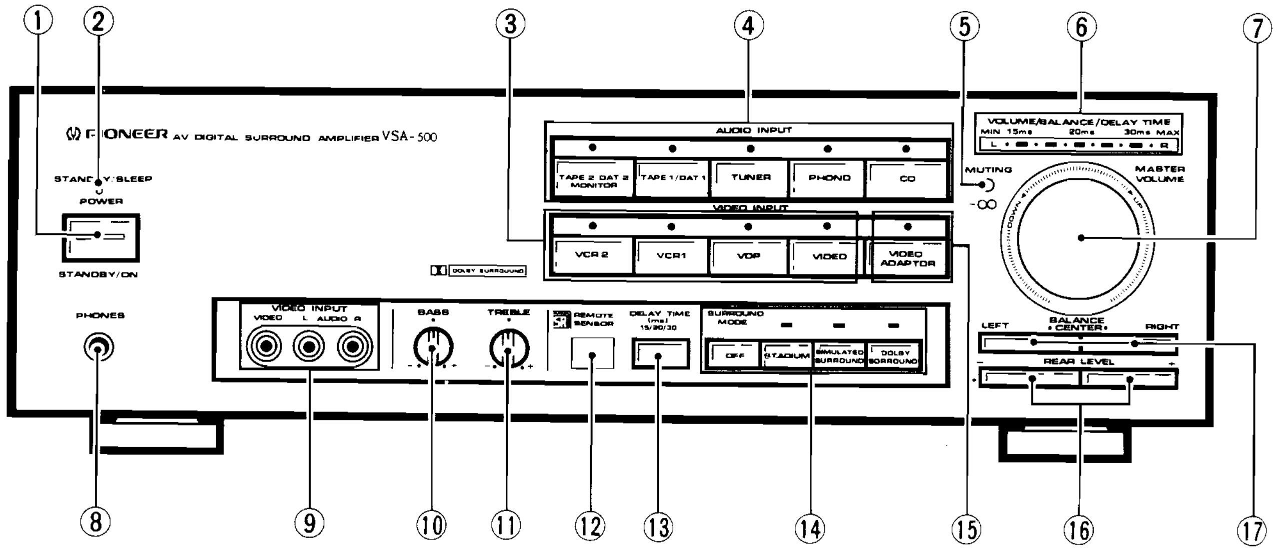
PDG030−A (Programable Remote Control Unit)

- **Pin Functions**

Pin No.	Pin Name	I/O	Pin Function	Active
1 ≀ 4	PD0 ≀ PD3	I/O	SRAM I/O1 to I/O3 (data)	—
5 ≀ 8	PC0 ≀ PC3	I/O	SRAM I/O4 to I/O7 (data)	—
9 ≀ 12	PF0 ≀ PF3	O	SRAM A0 to A3 (address)	H
13 ≀ 16	PE0 ≀ PE3	O	SRAM A4 to A7 (address)	H
17 ≀ 20	PB0 ≀ PB3	O	SRAM A8 to A10 (address)	H
21	PA0	O	SRAM WE (write enable)	L
22	PA1	O	SRAM OE (output enable)	L
23	PA2	O	SRAM CE (chip enable)	H
24	PA3	O	Scan signal output for diode switch	L
25	NC	−	Not used	—
26	Vss	−	GND	—
27 ≀ 30	PG0 ≀ PG3	I	Key scan input (internal pull−up resistor)	L
31 ≀ 34	PH0 ≀ PH3	I	Key scan input (internal pull−up resistor)	L
35 ≀ 38	PI0 ≀ PI3	O	Key scan strobe output (Nch open drain output)	L
39 ≀ 42	PJ0 ≀ PJ3	O	Key scan strobe output (Nch open drain output)	L
43	PK0	O	LED control (Nch open drain output)	H
44	PK1			
45	PK2	−	Not used (remote control output diode control)	H
46	PK3	O	Photodiode power control (Nch open drain output)	H
47	AMPO	O	Analog amplifier output for remote control signal	H
48	AMPI	I	Analog amplifier input for remote control signal	—
49	STOP	I	Hardware stop control input	L
50	VF	O	Comparator output for voltage reduction detection	L
51	VREF	O	Zener for voltage reduction detection	H
52	NC	−	Not used	—
53	XTAL	−	Ceramic oscillator connection pins (2 MHz) for clock oscillation	—
54	EXTAL	−		
55	RST	I	Reset input	L
56	RYO	O	Not used	—
57	RM0/PY1	O	Remote control output	H
58	VDD	−	+3V power voltage input	—
59	PY2		Not used (GND)	—
60	RM1/PY3	I	Remote control signal input	H
61 ≀ 64	PX0 ≀ PX3	I	Not used (GND)	—

9. PANEL FACILITIES

FRONT PANEL


①
②
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④
⑤
⑥
⑦
PIONEER AV DIGITAL SURROUND AMPLIFIER VSA-500
STANDBY/SLEEP
POWER
STANDBY/ON
AUDIO INPUT
TAPE 2 DAT 2 MONITOR
TAPE 1/DAT 1
TUNER
PHONO
CD
VIDEO INPUT
VCR 2
VCR1
VDP
VIDEO
VIDEO ADAPTOR
DOLBY SURROUND
VOLUME/BALANCE/DELAY TIME
MIN 15ms 20ms 30ms MAX
L R
MUTING
-∞
MASTER VOLUME
DOWN
UP
PHONES
VIDEO INPUT
VIDEO L AUDIO R
BASS
TREBLE
REMOTE SENSOR
DELAY TIME (ms) 15/20/30
SURROUND MODE
OFF
STADIUM
SIMULATED SURROUND
DOLBY SURROUND
LEFT
BALANCE
• CENTER •
RIGHT
REAR LEVEL
⑧
⑨
⑩
⑪
⑫
⑬
⑭
⑮
⑯
⑰

① POWER STANDBY/ON switch

- Switches power between ON and STANDBY condition. Press once to turn on. Press again to switch to standby.
- The POWER switch selects the transformer secondary even in STANDBY position. The unit circuitry will work as long as the power cord is connected to a power outlet.
- The accessory remote control unit can also be used to operate STANDBY/ON function of this switch.
- When not using the unit for a long period, disconnect the power cord.

② STANDBY/SLEEP indicator

Lights when the power is in the standby position.
Flashes when the sleep key on the remote control unit is pressed.

③ VIDEO INPUT selector switches/indicators

VCR 2:
Press when you wish to play the device connected to the VCR 2 input.
VCR 1:
Press when you wish to play the videocassette deck connected to the VCR1 input.
VDP:
Press when you wish to play a videodisc on a videodisc player connected to the VDP input.
VIDEO:
Press when you wish to play the device connected to the front panel VIDEO INPUT.

④ AUDIO INPUT selector switches/indicators

TAPE 2/DAT 2 MONITOR:
Press to listen to playback sound of cassette deck connected to TAPE 2/DAT 2 input.
TAPE 1/DAT 1:
Press to listen to the device connected to the TAPE 1/DAT 1 input.
TUNER:
Press to listen to FM or AM broadcasts from tuner connected to TUNER input.
PHONO:
Press to listen to records played on turntable connected to the PHONO input.
CD:
Press to listen to compact discs played on CD player connected to the CD input.

⑤ MUTING switch

Press to stop sound temporarily. Press again to return to previous volume level.

⑥ VOLUME/BALANCE/DELAY TIME indicators

These usually show the volume level. (They flash when muting is on.)
When you use the balance switches or the remote control unit's REAR L, R keys, the balance setting will be indicated.
When you use the delay time switch (on main unit or remote control unit), the delay time setting will be indicated.

- Volume indication resumes a few seconds after indication of balance or delay time.

⑦ MASTER VOLUME control knob

Use to adjust the sound volume.

⑧ PHONES jack

Plug into this jack to listen to headphones. No sound is heard from the speakers when headphones are connected.

⑨ VIDEO INPUT jacks

VIDEO:
Connect to VIDEO OUTPUT jack of video equipment.
AUDIO L, R:
Connect to AUDIO OUTPUT jacks of video equipment.
When you wish to watch a video source, use the VIDEO INPUT selector switches.

⑩ BASS control knob

Use to adjust the low-frequency level.
Press the + switch to increase low-frequency level, and the – switch to decrease it.

⑪ TREBLE control knob

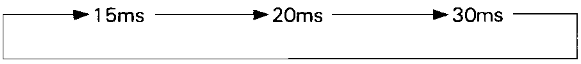
Use to adjust the high-frequency level.
Press the + switch to increase high-frequency level, and the – switch to decrease it.

⑫ REMOTE SENSOR window

When operating supplied remote control unit, point it at this window.

⑬ DELAY TIME switch

Switches the surround delay time in three steps.



The current setting is shown by the VOLUME/BALANCE/DELAY TIME indicators.

⑭ SURROUND MODE switches

Select surround mode to match program source.
OFF:
To cancel the surround function.
STADIUM:
Ideal for sports broadcasts, etc.
SIMULATED SURROUND:
Gives concert-hall presence to monaural sound (AM, TV, etc.).
DOLBY SURROUND:
Select this setting when watching video tapes or video disk player bearing the DD DOLBY SURROUND mark.

⑮ VIDEO ADAPTOR switch

Press when using a video adaptor component connected to the VIDEO ADAPTOR jacks.

NOTE:
If nothing is connected to the VIDEO ADAPTOR jack, then no picture will appear even if this switch is turned on.

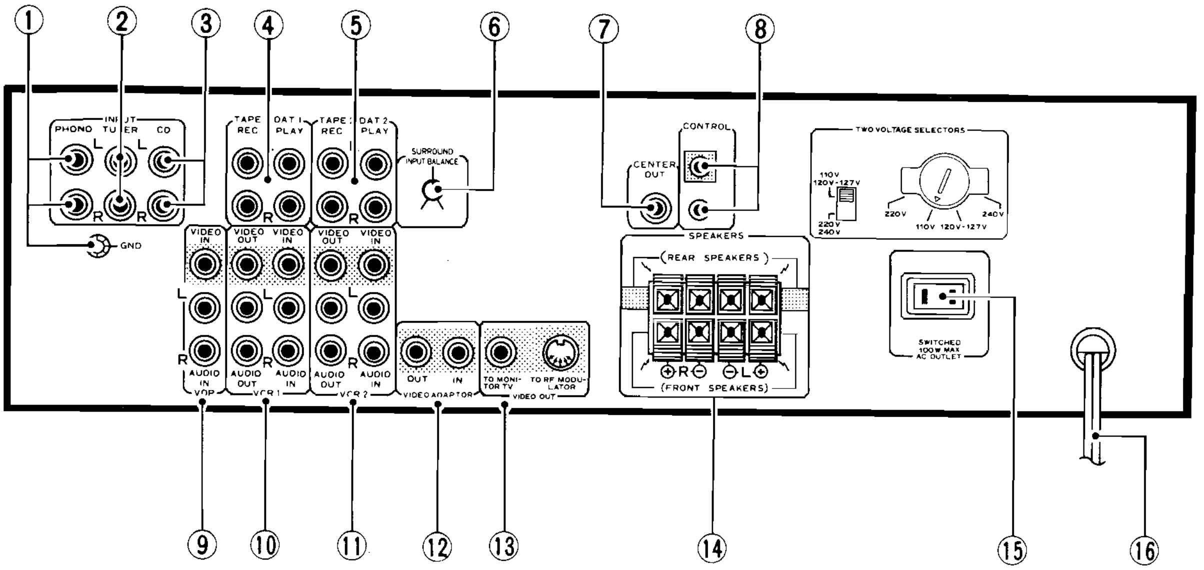
⑯ REAR LEVEL switches

Use to adjust the rear sound volume.
Press the + switch to increase the rear sound volume level, and the – switch to decrease it.
Press + and - together to return to the initial position.

⑰ BALANCE switches

Use to adjust the sound volume balance between left and right sides.
LEFT: Press to decrease the sound on the right side.
RIGHT: Press to decrease the sound on the left side.
Press L and R together to bring the volume balance to center.

REAR PANEL


①
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④
⑤
⑥
⑦
⑧
INPUT
PHONO
TUNER
CD
L
R
GND
TAPE 1 REC
DAT 1 PLAY
TAPE 2 REC
DAT 2 PLAY
SURROUND INPUT BALANCE
VIDEO IN
VIDEO OUT
AUDIO IN
AUDIO OUT
VDP
VCR 1
VCR 2
OUT
IN
VIDEO ADAPTOR
TO MONITOR TV
TO RF MODULATOR
VIDEO OUT
CONTROL
CENTER OUT
SPEAKERS
(REAR SPEAKERS)
⊕R⊖ ⊖L⊕
(FRONT SPEAKERS)
TWO VOLTAGE SELECTORS
110V 120V-127V
220V 240V
220V
110V
120V-127V
240V
SWITCHED 100W MAX AC OUTLET
⑨
⑩
⑪
⑫
⑬
⑭
⑮
⑯

① PHONO input jacks/GND terminal

Connect here the output of an analog record player. Connect the ground cable to the GND terminal.
Use a moving magnetic (MM) cartridge for the turntable.

② TUNER input jacks

Connect to the output jacks of an FM/AM tuner.

③ CD input jacks

Connect to the output jacks of a compact disc player.

④ TAPE 1/DAT 1 REC/PLAY jacks

REC:
Connect to recording input jacks of conventional or digital audio tape deck.
PLAY:
Connect to playback jacks of conventional or digital audio tape deck.

⑤ TAPE 2/DAT 2 REC/PLAY jacks

REC:
Connect to recording input jacks of second conventional or digital audio tape deck.
PLAY:
Connect to playback jacks of second conventional or digital audio tape deck.

NOTE:
When using digital audio tape deck, connect its analog input/output terminals.

⑥ SURROUND INPUT BALANCE control knob

This knob is for adjusting the balance of the DOLBY SURROUND input signal. To adjust, apply a monaural sound signal and rotate until the SURROUND (rear) sound becomes minimal.

NOTE:
Perform this adjustment to assure correct surround sound reproduction.

⑦ CENTER OUT jack

Outputs a mixture of right-channel and left-channel audio signals, and can be used for front center output for the Dolby Surround system with a connected monaural amplifier.

⑧ CONTROL IN/OUT jacks

These jacks are for input/output of control signals when operating other components with the attached remote control unit (see page 10 for details).

⑨ VDP input jacks

Connect to videodisk (LD) player output jacks (audio and video).

⑩ VCR 1 IN/OUT jacks

For connection of first VCR (VTR).
VIDEO OUT:
Connect to VCR video input jack.
VIDEO IN:
Connect to VCR video output jack.
AUDIO OUT:
Connect to VCR audio input jacks.
AUDIO IN:
Connect to VCR audio output jacks.

⑪ VCR 2 IN/OUT jacks

For connection of second VCR (VTR).
VIDEO OUT:
Connect to VCR video input jack.
VIDEO IN:
Connect to VCR video output jack.
AUDIO OUT:
Connect to VCR audio input jacks.
AUDIO IN:
Connect to VCR audio output jacks.

⑫ VIDEO ADAPTOR jacks

Connect to the output/input jacks of a video adaptor, such as a video enhancer, color corrector, etc.

⑬ VIDEO OUT jack

[TO MONITOR TV jack]

Connect to monitor TV or to TV sets with video input jacks.

[TO RF MODULATOR jack]

Use to connect a conventional TV set. When performing connections, the RF MODULATOR JA-RF5 (sold separately) is required. By connecting an RF modulator, video signal can be converted to VHF signal (U.S. channel 3 or 4), thus allowing this unit to be used to view the selected source on a conventional television set.

NOTE:

- *A "conventional TV set" has an antenna input terminals only.*

⑭ SPEAKER terminals

FRONT SPEAKERS:

Connect to front speakers.

REAR SPEAKERS:

Connect to rear speakers.

About speaker impedance

Speakers, front or rear, should have a rated impedance of 8 Ω or more.

⑮ AC OUTLET (SWITCHED TOTAL 100W MAX.)

Power supplied through these outlets is turned on and off by the POWER switch of this unit. Total electrical power consumption of connected equipment should not exceed 100W.

NOTE:

Do not connect appliances with high power consumption such as heaters, irons, or television sets to the AC OUTLETS in order to avoid overheating or fire risk.

This can cause this unit to malfunction.

⑯ Power cord

Connect this to the AC wall socket.

10. SPECIFICATIONS

Audio Section

Amplifier Section

SURROUND MODE

Continuous average power output of 55 watts* per channel, min., at 8 ohms, from 20 Hz to 20,000 Hz with no more than 0.08% total harmonic distortion (front); 15 watts* per channel, min., at 8 ohms, from 30 Hz to 7,000 Hz with no more than 5%** total harmonic distortion (rear).**

Music power (1 kHz, 1 %, 8 Ω)	
FRONT	115 W + 115 W
REAR	30 W + 30 W
Peak music power	
FRONT	460 W
REAR	120 W
Input (sensitivity/impedance)	
PHONO MM	2.5 mV/50 kΩ
CD, TUNER, TAPE 1/DAT 1, TAPE 2/DAT 2, VDP, VCR 1, VCR 2, VIDEO	150 mV/50 kΩ
Overload level	
PHONO MM, 1 kHz, 0.1 %	100 mV
Frequency response	
PHONO	20 Hz to 20 kHz ±0.5 dB
CD, TUNER, TAPE 1/DAT 1, TAPE 2/DAT 2, VDP, VCR 1, VCR 2, VIDEO	5 Hz to 80 kHz $^{+0}_{-3}$ dB
Output (level/impedance)	
TAPE 1/DAT 1, TAPE 2/DAT 2 REC	150 mV/2.2 kΩ
VCR 1, VCR 2 REC	150 mV/2.2 kΩ
CENTER (L + R) OUT	150 mV/2.2 kΩ
Tone control	
BASS	±8 dB (100 Hz)
TREBLE	±8 dB (10 kHz)
Muting	−∞

Surround Section (Surround mode: DOLBY SURROUND)

Frequency response	30 Hz to 7 kHz $^{+0}_{-3}$ dB

Video Section

Input (sensitivity/impedance)	
VCR 1, VCR 2, VDP, VIDEO, VIDEO ADAPTOR	1 Vp-p/75 Ω
Output (level/impedance)	
VCR 1, VCR 2, VIDEO ADAPTOR, TO MONITOR TV, RF MODULATOR	1 Vp-p/75 Ω
Frequency response	5 Hz to 10 MHz $^{+0}_{-3}$ dB
Signal-to-Noise ratio	More than 55 dB

Miscellaneous

Power requirements	AC 110/120 - 127/220/240 V (switchable), 50/60 Hz
AC Outlets	
SWITCHED x 1	100 W MAX
Power consumption	430 W
Dimensions	420 (W) x 125 (H) x 331 (D) mm 16-9/16 (W) x 4-15/16 (H) x 13-1/16 (D) in
Weight (without package)	7.8 kg (17 lb 3 oz)

Furnished Parts

Dry cell battery	2
Remote control unit	1
Template added	1
Operating instructions	1

NOTE:

Specifications and design are subject to change without notice due to improvements.

* *Measured pursuant to the Federal Trade Commission's Trade Regulation rule on Power Output Claims for Amplifier.*

** *Measured by Audio Spectrum Analyzer.*